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ST AMIGA FORMAT

The complete package for Atari ST and Commodore Amiga owners

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- **SUPER SCOPE –** Kuma's ST Oscilloscope reviewed

ST AMIGA FORMAT
ISSUE 2 ■ AUGUST 1988

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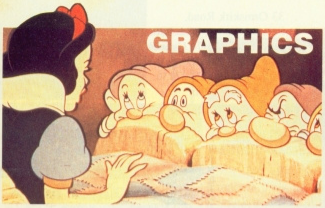
ST AMIGA FORMAT

The complete package for Atari ST and Commodore Amiga owners

DISK EXTRA

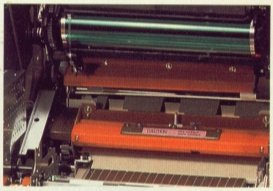
Demos of *Power BASIC*, *Digicalc* and *StarRay* punch their way onto this month's cover disk, plus a host of utilities for ST and Amiga owners. Get that disk drive whirring!

GAMES



GRAPHICS

REVIEWS



POINTLESS ARGUMENT

Despite the irresistible summer lure of sun-soaked foreign beaches, hundreds of you have found the time to fill in issue 1's questionnaire – thanks, and keep those letters rolling in too.

Among the opinions slowly emerging is a strong brand-loyalty among owners of STs and Amigas. Not surprising, and sure to warm the hearts of Atari and Commodore, but it's not all that useful if the cause of 16 bit computing is to advance. The more software available in both formats, the larger the potential audience; the larger the audience, the more machines will be sold and the more software will be produced for them. So the snowball rolls, crushing chickens and eggs in its path (!?!), until there's enough variety in the market to satisfy all tastes.

Amiga owners often quote the machine's high quality graphics and synthesizer-style sound chip as far superior to the ST. ST owners counter with their machine's MIDI interface, mono screen option and operating system in ROM. These old chestnuts continue to bounce back and forth, but there's a lot more in common between the two machines than there is separating them.

OK, so a little competition is a good thing, but here at ST Amiga Format we're committed to both machines. We think the ST and the Amiga are *both* superb computers which offer home and business users the best value-for-money deal that there has ever been in the micro marketplace. We'll continue to point out the strengths and weaknesses of each machine for specific applications, but together they leave the rest standing.

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NEWS

BASIC 3 from GFA

GFA's new BASIC 3 interpreter for the ST is due to hit the streets in mid-July. Version 2 has already established itself as a major contender for the most popular alternative to standard ST BASIC, and BASIC 3 opens up the language with additional structures, improved editing and error correction, and many more graphics commands including better control of GEM.

The new interpreter, marketed in this country by Glentop at £65, boasts a whole stack of new features and keywords. These include new commands like CASE and ENDSELECT, and extensions to existing commands, such as ELSEIF and OTHERWISE. Multi-line funtions are now also supported.

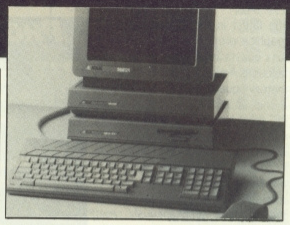
On the editing side, revisions to the editor, tracing functions and the addition of DUMP (which lets you dump the contents of variables and arrays) all aid program creation and debugging. New data types, borrowed from the world of Pascal and Modula 2, help to tie down data structures, and there are also new commands for direct bit level manipulation.

The graphics side of the program has also been upgraded with new Logo-style turtle graphics commands and better access to GEM for manipulation of windows, pull-down menus and dialogue boxes. Version 3 is claimed to be fully compatible with version 2 and should run earlier programs without change.

A Version 3 compiler and an Amiga version of the interpreter are also being written, but won't be available for some months to come.

■ *Glentop, 1 Bath Place, Barnet, Herts EN5 5YE (01-441 4130)*

Major business push for Atari



Atari are set for an onslaught on the micro business market with the launch of seven new products squarely aimed at the serious user. The new range will be coming out under the 'Hyper' banner, and is geared up for launch before the end of September this year. Three quarters of them are UK-originated products.

Bob Katz, Atari's Technical Director commented, "We're aiming these products particularly at the Mega ST user, but they'll all work on the 520 up." All the products are designed to run directly under GEM, making full use of features like multiple fonts and common device drivers to try for a 'Mac-like' user interface. They will be marketed directly by Atari.

The first two products, both of which should be available by the time you read this, are *Microsoft Write* (the only one not under the Hyper- label) and *HyperPaint*. *Write* is a top flight word processor with a full spell checker and the ability to import graphics. *HyperPaint* is described as a professional painting program with some revolutionary features: among these are the ability to zoom and edit a picture at 300 dpi resolution (that's the quality of a laser printer), to automatically filter 'noise' from scanned images, and to handle a picture of any size, limited only by the amount of memory in your ST. Presumably a 4Mb Mega ST can easily handle billboards! Anti-aliasing is used to smooth the edges of lines and objects.

Other hyper products close to completion include *HyperChart*, a port of Davrelle's award-winning chart creation program from the PC and *HyperDraw*,

an object-oriented drawing program similar to EasyDraw but with an improved user interface. *HyperPlan* is a spreadsheet which was first shown at the Hanover fair to much acclaim. It is compatible with the industry standard Lotus 1-2-3, but with an improved working style close to that of MicroSoft's Excel.

The final two products planned are the *HyperSomething* database (no finalised name!) and *HyperProject* project planner. HyperSomething will offer similar functions to Superbase Professional, and will be able to store graphics and *sounds* in its records. Now if it can interface to MIDI that *will* be interesting....

■ *Atari, Railway Terrace, Slough, Berks SL2 5BZ (0752 33344)*

Amiga animation competition

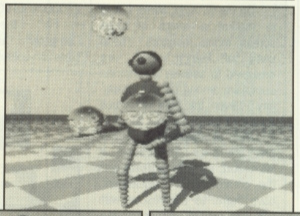
The Edinburgh Festival is not all Joan Bakewell and Tattoos this year. In amongst the standard fare of African drummers and Balkan poets The Amiga Centre Scotland will be hosting the first Edinburgh Festival Computer Animation Competition, from 11th to 20th August.

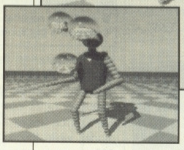
The competition, to accompany a workshop and exhibition, is to find the best animation generated using an Amiga. The first prize is being provided by Commodore themselves, an Amiga 500 or Commodore hardware to the same value. Other sponsors include the Disc Company, who'll be giving away various software products such as Imagine, a new 3D animation package, and Kind Words, their word processor.

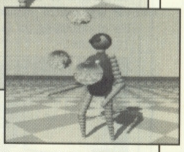
There are no pre-defined categories and entries can be made on disk or PAL video tape. You don't have to travel to Edinburgh in person, although if you don't you'll be missing a cultural bonanza!

Animation competitions are big business in the States – the curiously named Badge Killer Competition held in October last year at Stanford University resulted in some truly amazing demos for the Amiga turning up. Now is the chance for you to help prove that UK programmers can beat the best the US has to offer any day!

Among the names who have expressed interest are Eric Graham, author of Sculpt-3D, Animate-3D and the classic Juggler demo; Martin Hash, author of animator Apprentice; and Joel Hagen, winner of the aforementioned Badge Killer contest. The judges will be professional graphic designers and animators from the world of TV and films.





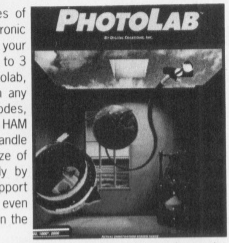


■ ***Can you beat Juggler, Eric Graham's classic Amiga animation?***

Closing date for finished entries is 1st August, so you'd better hurry. There's no entry fee.

■ *Further details from Iain Anderson, Animation Competition, The Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh E1 3RN (031-557 4242)*

Deluxe Photolab processes HAM



The latest in the Deluxe series of graphics programs from Electronic Arts boasts the ability to print your favourite Amiga art in sizes up to 3 metres square (!). Deluxe Photolab, a snip at £69.95, operates in any of the Amiga's screen modes, including the 4096 colour HAM mode. The program can handle images up to 20 times the size of an Amiga screen, limited only by available memory, and can support two screens simultaneously, even allowing cut and paste between the two.

Deluxe Photolab offers a host of painting tools, such as four point curves, adjustable airbrushes and anti-aliasing (which even takes effect on printing, to the resolution of your printer). The package claims to offer full control over the colour palette, including colour merging, pixel population counts and colour separations. Included in these special techniques is a function to convert images from any Amiga screen mode to any other.

■ *Electronic Arts, 11/49 Station Road, Langley, Berks SL3 8YN (0753 46465)*

Brief briefs

Frontier Software (0423 67140), importers of the Supra range of hard disk drives for the ST, have announced price cuts across their entire range. The 20 Mbyte drive is cut by £50 from £599.95 to £549.95 while the 60 Mbyte version drops from £1499.95 to £999.95.

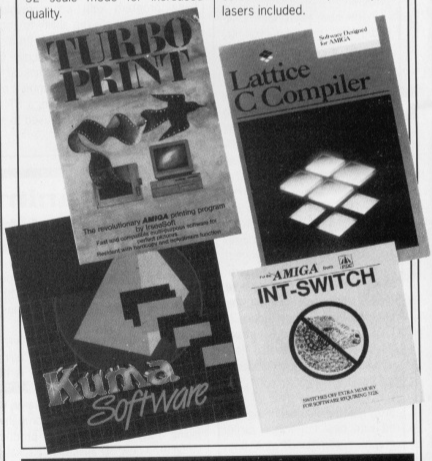
Roundhill (0672 54675) have version 4.0 of Lattice C available for the Amiga at £115 and **Metacomco** (0272 428781) can supply the Lattice compiler companion with loads of useful utilities for use with C, BASIC, Modula-2, Pascal, or Assembler. The companion costs £86.25.

Newday (01-948 2516), have introduced a video digitiser for the Amiga which can digitise up to four images in RAM in real-time and save them in standard IFF format. It normally uses 16 grey scales but has an optional 32 scale mode for increased quality.

Mirrorsoft (01-377 4837) have developed a special version of Fleet Street Publisher ST to interface to the Linotron 202 phototypesetter. If you happen to have a 202 at home (they cost £10,000-ish), FSP for it goes for an undisclosed sum.

Kuma (07357 4335) have released K-Gadget (£29.95), a quaintly named Amiga programmer's toolkit. It aims to help you design complex requesters and gadgets in C source code.

George Thompson Services (077 082 234) have signed up the rights to two German Amiga utilities. Int-Switch (£9.99) is a program to disable expansion RAM and bridgeboard. It survives a warm boot, so is needed for some games that fall foul of expansion RAM. TurboPrint (£29.99) is a high speed printer driver and screen dumper for all screen modes and printer types, lasers included.



Big screens, fancy fonts

When it comes to displays, 'Big Is Beautiful' seems to be the order of the day on both Amiga and ST. New add-on screens for both machines could be just what your tired eyes are crying out for – at a price!

On the ST side, Mirrorsoft is to market a range of large screen mono monitors. These units, of French origin, are designed to address a common complaint among the DTP fraternity – even the high resolution mono screen on an ST isn't capable of displaying a complete A4 page. The people at Mirrorsoft, used to working with the cream of DTP equipment, have come to the rescue with 17", 19" and 24" monitors capable of displaying up to 1280 x 1024 pixels.

■ *An ST with Megavision*

Your standard ST screen remains active alongside the Megavision, and special software allows you to displaying the output of different programs on each screen – a word processor and a DTP, for instance. You can also use one monitor to enlarge any section of the other and call up the GEM menu from any point on the Megavision screen. Prices range from £1000 to £1600.

For the Amiga, Tri Computers are offering two sizes of colour screen in either long persistence (suitable for interlace mode displays) or Multisync configurations (with scanning rates up to 40kHz). The Coltron Sword 37 is the 14" model, while the 5140 is a full 20" screen capable of displaying a complete A3 page (or A4 spread). Prices start at £747.50 for either of the small screen models rising to a cool £2070 for the true Mega screens.

■ *An Amiga running Tri Computer's big screen.*

■ *Mirrorsoft, Headway House, 66-73 Shoe Lane. London EC4P 4AB (01-377 4761)*

■ *Tri Computers, 161-169 Uxbridge Road, Ealing, London*

You'll believe a game can fly!

Tynesoft, best known for their shooting, fencing and diving game **Summer Olympiad** (known in the States as *Summer Challenge* since 'Olympiad' is too complex a concept) have tied up a licence with DC Comics. DC, purveyors of all things Super, are apparently keen to get into the software market and Tynesoft are working closely with a US software house to have *Superman*, the game, ready for the Autumn. Or should that be Fall.

■ ***Faster than a speeding bullet, but still unlikely to reach us before September.***

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TITLE	HOUSE	S.S.P.	OUR PRICE
Sentinel	Firebird	19.99	13.50
Seven Cities of Gold	Electronic Arts	14.99	10.25
Shadowgate	Mindscape	24.99	16.50
Shanghai	Activision	24.99	16.50
Sherlock	Infocom	24.99	16.50
Sidewinder	Mastertronics	9.99	7.00
Silent Service	Microprose	24.99	16.50
Sinbad and Throne/ Falcon	Mindscape	29.99	19.50
Soccar Supremo	Grysys	19.99	13.50
Space Port	Reline	19.99	13.50
Space Quest	Sierra	29.99	19.50
Space Ranger	Mastertronics	9.99	7.00
Space Station	Prism	9.99	7.00
Star Glider	Rainbird	24.99	16.50
Star Wars	Domark	19.99	13.50
Starfleet 1	Interestel	24.95	16.50
Steller Conflict	P.A.R.	26.50	19.50
Stir Crazy (Bobo)	Infogrames	19.99	13.50
Stock Market	Tynesoft	19.99	16.50
Strike Force Harrier	Mirrorsoft	24.99	16.50
Strip Poker I	ANCO	9.99	7.00
Strip Poker II	ANCO	14.99	10.25
Surgeon	I.S.M.	49.99	31.50
Swooper	Robtek	19.99	13.50
Temple of Apshai	U.S. Gold	24.99	16.50
Terramex	G.S.E.	19.99	13.50
Terrapods	Psygnosis	24.99	16.50
Test Drive	Electronic Arts	24.99	17.50
The Jewels of Darkness	Rainbird	19.99	13.50
Three Stooges	Mirrorsoft	29.99	19.50
Time and Magik	Level 9	19.95	13.50
Time Bandits	Microdeal	19.99	13.50
Ultima III	Origin	24.99	16.50
Unvited	Mindscape	29.99	19.50
Vampire Empire	Magic Bytes	19.99	13.50
Warzone	Prism	9.99	7.00
Western Games	Magic Bytes	19.99	13.50
Winter Olympiad	Tynesoft	19.99	13.50
Witness	Infocom	29.99	19.50
Wizball	Ocean	24.99	16.50
World Darts	Mastertronics	14.99	10.25
World Games	Epyx	24.99	16.50
World Tour Golf	Electronic Arts	24.95	17.50
Xenon	Melbourne House	19.95	13.50

SPECIAL OFFERS WHILE STOCKS LAST

TITLE	HOUSE	S.S.P.	OFFER PRICE
Black Shadow	C.R.L.	24.95	15.50
Blasball	Mastertronics	9.99	5.50
Borrowed Time	Activision	24.99	15.50
Brainstorm	Robtek	9.99	5.50
Casiono Roulette	C.D.S	19.99	12.50
Challenger	ANCO	9.99	5.50
Cougans Run	Softgang	14.99	9.50
Cuthroats	Infocom	29.99	12.00
Deadline	Infocom	29.99	12.50
Demolition	ANCO	9.99	5.50
Destroyer	Epyx	24.99	15.50
Diablo	Robtek	19.99	12.50
Extensor	Players	9.99	5.50
Eye	Endurance	14.99	9.50
Final Trip	ANCO	9.99	5.50
Flight Path 737	ANCO	9.99	5.50
Footman	Topdown	24.95	15.50
Galactic Invasion	Microillusions	24.99	15.50
Godrunner	Microdeal	24.95	15.50
Grid Start	ANCO	9.99	5.50
Hacker	Activision	29.99	12.00
Hacker II	Activision	29.99	12.00
Hollywood Poker	Robtek	19.99	12.50
Insanity Flight	Microdeal	24.99	12.50
Jigaw Mania	Robtek	9.99	5.50
Jump Jet	ANCO	14.99	9.50
Karate Kid II	Microdeal	24.99	15.50
King of Chicago	Mirrorsoft	29.99	18.50
Knight Orc	Rainbird	24.99	12.50
Kwasimodo	Robtek	9.99	5.50
Las Vegas	ANCO	9.99	5.50
Leviathan	English	19.99	12.50
Mach 3	Loriciels	19.99	12.50
Mindshadow	Activision	24.99	12.00
Moebius	Origin	24.95	15.50
Nord and Bert	Infocom	24.99	15.50
Orge	Origin	24.95	15.50
Phalanx	ANCO	9.99	5.50
Q Ball	English	19.99	12.50
Roadwar	Melbourne House	19.99	12.50
Rockey	Robtek	9.99	5.50
Rolling Thunder	U.S. Gold	24.99	15.50
Seastalker	Infocom	29.99	12.00
Seconds Out	Tynesoft	19.99	12.50
Silicon Dreams	Microprose	24.99	15.50
Skyfighter	ANCO	14.99	9.50
Slayyon	Microdeal	19.99	12.50
Space Battle	ANCO	9.99	5.50
Spellbreaker	Infocm	29.99	12.00
Starcross	Infocom	29.99	12.00
Starways	Robtek	19.99	12.50
Stationfall	Infocom	29.99	12.00
Strange New World	Timeway	19.99	12.50
Tass Times	Activision	29.99	12.00
Tetris	Mirrorsoft	19.99	12.50
Thai Boxing	ANCO	9.99	5.50
The Wall	Timewarp	14.99	9.50
Thunderboy	Timewarp	14.99	9.50
Vaders	ANCO	9.99	5.50
Vyper	Topdown	14.99	9.50
Winter Games	Epyx	24.99	12.50
Wishbringer	Infocom	29.99	12.00
XR35 Fighter	ANCO	9.99	5.50
Zork I	Infocom	29.99	12.00
Zork III	Infocom	29.99	12.00
Zork III	Infocom	29.99	12.00

THIS OFFER APPLIES ONLY WHILE PRESENT STOCKS LAST PLEASE CHECK AVAILABILITY

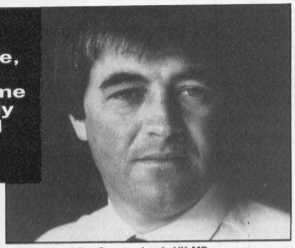
TITLE	HOUSE	S.S.P.	OUR PRICE
A.C./Basic	Absoft	195.00	132.50
AC Fortran		295.00	202.50
Adrum	Bullfrog	39.99	32.50
Analyse II	M.S.S.	69.95	49.50
Animator/Images	Aegis	103.50	75.50
Arts Part 1	Electronic Arts	9.99	7.50
Arts Part 2	Electronic Arts	9.99	7.50
Audio Master	Aegis	46.00	32.00
Butcher	Eagle Tree	29.95	21.50
C.Library	Benchmark	79.99	60.50
Caligrapher	Interactive	69.95	50.50
City Desk	S.I	114.95	85.00
C.L.I. Mate	P.P.S.	39.95	29.50
Deluxe Music Con Set	Electronic Arts	69.99	50.50
Deluxe Paint II	Electronic Arts	69.95	50.50
Deluxe Print	Electronic Arts	24.95	18.50
Deluxe Productions	Electronic Arts	139.95	115.00
Deluxe Video (PAL)	Electronic Arts	69.95	50.50
Doga	Aegis	57.50	42.50
Digipaint	Newtek	59.95	42.50
Digiview 2.0	Newtek	149.95	105.00
Digiview Adapier	Newtek	22.95	19.50
Director	The Right Answer	59.95	45.50
DOS2 DOS	Central Coast	39.95	29.50
Express Paint	P.A.R.	69.95	50.50
Flipside	M.S.S.	29.95	21.50
Futuresound	Applied Visions	175.00	155.00
Grabbit	Discovery	29.95	21.50
Hai Calc	Haitex	59.95	42.50
Hot & Cool Jazz	Electronics Arts	9.99	7.50
I.F.F. Library	Benchmark	79.99	60.50
Instant Music	Electronic Arts	29.95	21.50
Intelletype	Electronic Arts	29.95	21.50
Intro CAD	P.P.S	59.95	42.50
K.Sega Assembler	KUMA	49.95	32.50
Kara Fonts	Kara	59.95	45.50
Lattce C 4.0	Lattice	172.50	122.50
Lisp	Metacomco	149.95	102.50
M.C.C. Pascal	Metacomco	89.95	69.50
Macro Assembler	Metacomco	69.99	50.50
Marauder II	Discovery	39.99	29.50
Maxiplan A500	OXXI	99.95	72.50
Maxiplan Plus	OXXI	149.95	102.50
Microfiche Filler	S.V	79.95	62.50
Modula II	Benchmark	139.95	102.50
Music Studio	Activision	34.99	24.50
On Line	M.S.S.	110.95	99.50
Organize II	M.S.S.	69.99	50.50
Photon Paint	Microillusions	69.99	50.50
Pixmate	P.P.S	49.95	39.50
Prism	Impulse Inc	99.95	45.50
Pro Board	Prolific	475.00	375.00
Pro Net	Prolific	475.00	375.00
Pro Sound Designer	Eidorsoft	34.99	29.50
Pro Video		159.95	127.50
Professional Page	Gold disk	249.95	175.00
Publisher Plus	North East	99.50	72.50
Rock 'n' Roll	Electronic Arts	9.99	7.50
Scribble II	M.S.S.	49.95	39.50
Sculpt 3D	Byte by Byte	85.00	69.50
Sculpt 3D Animate	Byte by Byte	139.95	105.00
Seasons an Holidays	Electronic Arts	9.99	7.50
Shakespear	Infinity	129.95	85.00
Shell	Metacomco	49.95	34.50
Silver	Impulse	139.95	115.00
Simp Library	Benchmark	79.95	60.50
Sonix	Aegos	57.50	39.50
Superbase	Precision	89.95	72.50
Superbase Professional	Precision	249.95	185.00
T.V. Show	Zuma	69.99	50.50
T.V.Text	Zuma	69.99	50.50
The Works	M.S.S.	149.99	105.00
Tool Kit	Metacomco	39.95	29.50
Video Titler 1.1	Aegis	110.00	85.00
Videoscape3D	Aegis	143.75	110.00
Word Perfect 4.10	Word Perfect	228.85	175.50
X CAD		460.00	325.00
Zuma Fonts 1	Zuma	34.95	24.50
Zuam fonts 2	Zuma	34.95	24.50
Zuma Fonts 3	Zuma	34.95	24.50

HARDWARE PRICE LIST

ITEM	S.S.P.	OUR PRICE
A500 Computer Built in 31/2" Disk Drive Amiga DOS Kickstart, Workbench, "The Very First")	399.99	350.00
A500 (as above) with 1084 Colour monitor	699.99	620.00
A500 (as above) with Printer	804.99	750.00
1084 Colour Monitor	349.99	325.00
Citizen Printer	228.85	210.50
A520 T.V. Modulator	24.99	22.50
A501 512K R.A.M Expansion Pack Plus Battery Backed Clock	119.99	112.50
B2000 Computer	1295.25	1150.50
B2000/C with 1084 Colour Monitor	1321.53	1268.50
2nd External Disc Drive for A500		105.00
Disc Boxes (Holds 40 Discs)		10.50
Discs Boxes (Holds 90 Discs)		12.50
Mouse Mats		5.00
Pro 5000 Joysticks		14.99
Ram Delta Joysticks		9.99
Alsop Universal Printer Stand		10.99
Citizen 120D Printer Ribbons		3.50
Box of 10 Blank Discs in Box		13.50
Disc Drive Head Cleaners		9.95

Hard Sell, Soft Sell

The Commodore Show disrupted traffic around Hammersmith early in June, but *ST Amiga Format*, like most sensible punters, came by Tube. We found a quietly confident Commodore and plenty of others out to sell their wares.



■ *Steve Franklin, Commodore's UK MD*

Computer shows are a function of the micro scene you grow to love and hate. On the plus side they're one of the few places you can pick up first hand news, gossip, slander and free food – if you've got a magic hack's pass. Against that, they make you sweat, oblige you to laugh a lot at the poor jokes of PR companies and take several miles of wear of the soles of your shoes. On balance it really depends what you get to hear...

Look, no Hans

Christian Andersen, Commodore's European supremo, headed up their 'very passable' champagne breakfast (their PR company's words, not ours) and was full of how Commodore had survived the last two lean years and were now poised to invest over £5 million in promoting the Amiga as a 'leisure computer'.

Andersen ended the intense speculation by confirming a £100 cut in the price of the A500, bringing it into line with the Atari ST 520 at £399. Dealers and potential users alike have been lobbying Commodore for this reduction, which should put the cat among the pigeons over the summer months.

Andersen was at pains to stress, however, that the price cut is only the first stage in a major drive throughout Europe, which now accounts for 60% of Commodore's worldwide sales. Commodore claim 600,000 sales worldwide, of which 40,000 in the UK is the official figure.

Flanking the man from Munich were the company's UK head, Steve Franklin, and Dean 'he's in a meeting' Barrett, their elusive Marketing Manager. Franklin was keen to highlight the top of the range 68020 Amiga 2500, which he said would boast a three-partition hard disk capable of running AmigaDOS, MS-DOS and Unix. Before you reconsider your A500 purchase, though, it's worth mentioning that the likely price is around £7000 and that it's expected to have the performance of a VAX mini-computer.

■ *Commodore UK, The Switchback, Gardner Road, Maidenhead, Berks SL6 7XA (0628 770088)*

AAAE!

Not the noise you might make after hearing the price of the A2500, but the name of some very impressive software from Ariadne currently on test with, among others, British Aerospace, Warton, Lancs, as part of their Tornado Aircraft Ground Crew training system. The software package gives you complete control over a variety of laser disc players, the best-known of which being the Philips model. The laser disc is linked to the Amiga as a completely new device and can be accessed through the software to provide instantaneous control of its running.

With the Ariadne Amiga Application Environment (AAAE) Video Player Device you can control a laser disc directly from an iconic control panel which appears over the top of the video output on your screen. You can loop, freeze, forward and backtrack the display and jump instantly to any part of the disc. The software is priced for the professional (that means someone with loadsa-money) at £402.50; if you're still in the running, remember you'll also need a laser disc, costing around £1200.

■ *Ariadne 273 Kensal Road, London W10 5DB (01-960 0203)*

■ ***Ariadne's Hanafi Houbart and the AAAE video device***

Burocare bonanza

As always, the punters love sexy hardware. One stand which seemed jam-packed with wizzo gadgetry was Burocare's – of perhaps greatest interest to Amiga users was the removable hard drive system. For £1035 you get a 5.25" hard drive with a respectable access time of 40ms. The advantage of this system, though, and what the company obviously hopes will justify the extra £300 over the cost of a fixed hard disk, is that you can remove the 20 Mbyte cartridge and replace it with another, and another, and another. The only drawback other than the initial cost is that the cartridges cost £57.50 each. Still, for business use this may be acceptable.

Also on the Burocare stand were a real-time colour digitiser for £920 and the HP PaintJet colour ink-jet printer at a touch under £1000, capable of reproducing the Amiga's full 4096 colours.

■ *Burocare, 211 Kenton Road, Harrow, Middx HA3 0HD (01-907 3636)*

A life on the Ocean wave

Bars are wonderful places. A sense of the variety of life and the odd pint of invigorating ale. Pints in the Novotel are hardly that, but all in the line of duty we managed to keep one down long enough to chat to Gary Bracey of Ocean.

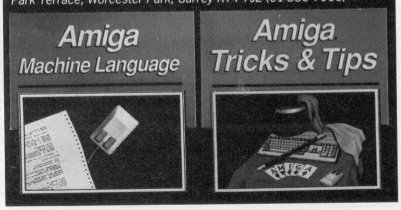
Apart from much time debating whether to buy an Amiga for the company "to assess the opposition's software", Bracey did manage to mention 'Operation Wolf', Ocean's forthcoming release which, we were assured, will be the 'Out Run' of 1988. The Amiga version will include graphics ported directly from the arcade machine and should be here in the Autumn, assuming the programmer can cut the code to fit onto less than the current 7 disks!

AMIGA AMIGOS

At times the Amiga's sophistication can be daunting, but two new titles from Abacus books may help to change all that.

Amiga Tricks & Tips is a collection of useful hints for all Amiga users. Among its topics are getting more from the Workbench and CLI, BASIC programming tips, creating icons, and help with many popular commercial applications. *Amiga Machine Language* aims to combine a beginners guide to 68000 programming with detailed machine information for experts. It covers controlling the screen and disk drives, gadgets, sound and mouse . Both books cost £12.95.

■ *Abacus books are distributed in the UK by Precision Software, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ (01-330 7166)*



NEW LOW PRICE ST!

ST PRICE INCREASE

Due to a worldwide shortage of memory chips, prices of many computers have gone up. From April 1988, the Atari ST range is also likely to be affected. For details of any price increase, please return the coupon below for our latest literature.

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Finally, there's a personal computer that not only solves problems like other computers, but also solves the one problem that other computers have created. Affordability. Silica Shop are pleased to present the ST range of personal/business computers from Atari. The ST was designed-utilizing the most recent breakthroughs in semiconductor technology, producing a personal computer that performs tasks with fewer parts. Which means it costs less to make. And less to buy. The latest ST computers now include built in power supplies and built in disk drives. The TOS operating system and GEM window environment are now on ROM chips which are already installed in the ST keyboard. This enables automatic instant booting when you switch on. Silica Shop are pleased to offer the complete Atari ST range. Our mail order department is situated in Sidcup and we have 3 retail outlets at Sidcup, Lion House (Tottenham Court Rd) and Selfridges (Oxford Street). We have eight years experience of Atari products, longer than any other UK company, and are well established as the UK's No.1 Atari specialist. With a group turnover of over £9 million and in excess of 80 staff, we offer you unbeatable service and support. We provide several facilities which you will find invaluable during your Atari computing life and most of these facilities are available **ONLY FROM SILICA**. We suggest that you read through what we have to offer, before you decide where to purchase your Atari ST.

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When you purchase any Atari ST keyboard, you will not only receive the best value for money computer on the market, but you will also receive the following from Atari Corporation as part of the package:

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If you buy your ST from Silica Shop, you will also receive:

** NEOchrome Sampler - colour graphics program * 1st Word - Word Processor*

In addition, we at Silica would like to see you get off to a flying start with your new computer, so we have put together a special **ST STARTER KIT** worth over £100, which we are giving away **FREE OF CHARGE** with every ST computer purchased at our normal retail prices. This kit is available **ONLY FROM SILICA** and is aimed at providing users with a valuable introduction to the world of computing. We are continually upgrading the ST Starter Kit, which contains public domain and other bundled software, as well as books, magazines and accessories all relevant to ST computing. Return the coupon below for full details.

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At Silica Shop, we have a dedicated service department of seven full time Atari trained technical staff. This team is totally dedicated to servicing Atari computer products. Their accumulated knowledge, skill and experience makes them second to none in their field. You can be sure that any work carried out by them is of the highest standard. A standard of servicing which we believe you will find **ONLY FROM SILICA**. In addition to providing full servicing facilities for Atari ST computers (both in and out of warranty), our team is also able to offer memory and modulator upgrades to ST computers.

1Mb RAM UPGRADE: Our upgrade on the standard Atari 520ST-M or 520ST-FM keyboard will increase the memory from 512K to a massive 1024K. It has a full 1 year warranty and is available from Silica at an additional retail price of only £86.96 (+VAT = £100).

TV MODULATOR UPGRADE: Silica can upgrade the 1040ST-F to include a TV modulator so that you can then use it with your TV set. This is an internal upgrade and does not involve any untidy external boxes. A cable to connect your ST to any domestic TV is included in the price of the upgrade which is only £49 (inc VAT). The upgrade is also available for early 520ST computers at the same price.

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We aim to keep stocks of all Atari related products and our warehouse carries a stock of over £½ million. We import many software titles direct from the USA and you will find that we have new releases in advance of many of our competitors. Unlike dealers who may only stock selected titles, we have the full range. In addition, we carry a complete line of all books which have been written about the Atari ST. A range as wide as ours is something you will find is available **ONLY FROM SILICA**.

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Rest assured that when you buy your ST from Silica Shop, you will be fully supported. Our free mailings give news of releases and developments. This will help to keep you up to date with new software releases as well as what's happening in the Atari market. And in addition, our sales staff are at the end of a telephone line to service all of your Atari requirements. If you purchase an ST from Silica and would like a technical advice, we have a full time technical support team to help you get the best from your computer. Because we have both the staff and the systems specifically dedicated to providing after sales service on Atari ST computers, we are confident that our users enjoy an exceptionally high level of support. This can be received **ONLY FROM SILICA**.

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Selfridges (1st floor), Oxford Street, London, W1A 1AB

£260 +VAT=£299

SO MUCH FOR SO LITTLE!

There is nothing that can compare with the incredible value for money offered by Atari's 520ST-FM. For only £260 (+VAT=£299), you can purchase a powerful 512K RAM computer, with a 95 key keyboard (including numeric keypad), MIDI interface, GEM, a palette of 512 colours, mouse controller, and a 512K built-in disk drive. The 520ST-FM has a TV modulator built-in, and comes with a lead to allow you to plug it straight into any domestic colour television set. The mains transformer is also built-in to the keyboard, so there are no messy external boxes. You couldn't wish for a more compact, powerful and stylish unit. Atari ST computers are now firmly established in the UK, there are nearly 500 software titles already available for a wide variety of applications and the list is growing all the time. And that's not all. When you buy your new 520ST-FM (or any Atari ST computer) from Silica Shop, you will get a lot more, including a FREE Silica ST Starter Kit worth over £100. Read the ONLY FROM SILICA section on the left, to see why you should buy your new high power, low price 520ST-FM from Silica Shop, the UK's No1 Atari Specialists. For further details of the range of Atari ST computers and the FREE Silica ST Starter Kit, complete and return the reply coupon below.

ATARI 520ST-FM NOW ONLY £260 (+VAT=£299)

520ST-FM with 512K RAM & mono monitor £399 (inc VAT) — **Upgrade from 512K RAM to 1024K RAM £100** (inc VAT)

ATARI 1040ST-F - NEW PRICE

We are pleased to announce a new reduced price point on the 1040ST-F which is now available for only £499 (inc VAT). The 1040 is a powerful computer with 1Mb of RAM and also includes a built-in 1Mb double sided 3½" disk drive. The 1040 has been designed for use on business and professional applications most of which require a high resolution monochrome or colour monitor. It does not therefore have an RF modulator for use with a domestic TV set. Modulators can be fitted for £49 (inc VAT).

1040ST-F Keyboard - Without Monitor	*£499 (inc VAT)*
1040ST-F Keyboard + High Res SM125 Mono Monitor	*£599 (inc VAT)*

If you would like further details of the 1040ST-F, return the coupon below.

MEGA ST's NOW IN STOCK

For the user who requires even more RAM than the 520 or 1040 ST's offer, the new MEGA ST computers are now available. There are two MEGA ST's, one with 2Mb of RAM and the other with a massive 4Mb. Both new computers are fully compatible with existing ST's and run currently available ST software. The MEGA ST's are styled as an expandable Central Processing Unit with open architecture and a detachable keyboard. They are supplied with GEM, a free mouse controller and all extras as with the 520 or 1040. Prices are as follows:

MEGA ST 2Mb Keyboard + CPU	*£899 (inc VAT)*
MEGA ST 2Mb Keyboard + CPU + SM125 Mono Monitor	*£999 (inc VAT)*
MEGA ST 4Mb Keyboard + CPU	*£1199 (inc VAT)*
MEGA ST 4Mb Keyboard + CPU + SM125 Mono Monitor	*£1299 (inc VAT)*

If you would like further details of the MEGA ST's, return the coupon below.

To: Silica Shop Ltd, Dept STFM, 1-4 The Mews, Hatherley Road, Sidcup, Kent. DA14 4DX

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Do you already own a computer
If so, which one do you own?

FUTURE PERFECT?

A taster of the games which look set to blow your monitors in the next month or two – Andy Storer rounds them up.

Pool Of Radiance

U.S.Gold ■ ST & Amiga ■ £Not announced

This looks set to be a biggie for all RPGers. Along with **Heroes of the Lance, Radiance** is the first title from a collaboration between Strategic Simulations and TSR – the producers of the **Advanced Dungeons and Dragons** fantasy role playing system. Expect quite a few releases from the same stable as they're signed up for five years worth of advanced combat and strategy. Will your alter ego ever forgive you? *(Unlikely – Id).*

Ebonstar

Mediagenic ■ Amiga ■ £24.99

1,000 years in the future you're hanging on the edge of a synthetic black hole and hurling your opponents through it as you try to destroy the **Ebonstar**. A skill and strategy game for up to 4 players battling through infinite levels of complexity. Suddenly the 4.1 billion levels of **Whirligig** have become a mere trifle.

Mortville Manor/Maupiti island

Lankhor ■ ST & Amiga ■ £24.95

Mortville is a mouse-driven graphic adventure with the unique quality of being full of sampled speech and sound effects. Gothic horror is enhanced by carefully crafted musical inserts compounding the sense of mystery. **Maupiti** is its next volume, which must win all awards for the fastest follow-up of all time – the original isn't even on the shelves yet!

The Empire Strikes Back

Domark ■ ST ■ £19.95

Guess it was only a matter of time, but here you have it; the sequel. **Star Wars** was pretty furious in the laser department but a little devoid of depth when it came to lasting interest; let's hope this version makes amends. How hard the Empire strikes back must be open to question, but since there are four levels on this one it must be an improvement.

■ *Better dead than Alien*

■ *Mortville Manor*

Wanderer

Elite ■ ST ■ £19.95

Fabulous 3-D shoot-'em-up cut with interstellar poker. Sounds wacky? You bet. But this is 3-D with a difference – you wear stereo specs to make red and blue screen images converge for stunning action with alien vehicles leaping out of the screen, so don't expect to see any screen shots of this one. The craziest poker sim you're ever likely to see – wildcards are to be found at the bottom of black holes!

StarRay

Logotron ■ Amiga ■ £24.95

As seen on this month's cover disk! If you can imagine **Defender** with a multi-plane solid background running at speeds only 16 bit power makes possible, you'll have a good idea of what to expect from this ultra-fast horizontal scroller. Better buy asbestos padding for the joystick though – spontaneous combustion is definitely a risk.

Better Dead Than Alien

Electra ■ ST & Amiga ■ £19.95

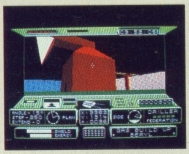
Second only to 'Chubby Gristles' from **Grand Slam** in our current awards for game name fame, **Better Dead** also scores with its loading screen. As for the game: it features the ugliest life forms you're never likely to see and your job is to return them to their rightful place in the ecological chain, ie. something approaching slime. Sounds great.

RUSHES

Clips from the cutting room floor and other games gossip

A pair of avant-garde 8 bits which cry out for conversion more than most are **Driller** and its sequel, **Dark Side**. Incentive have now decided to put them on the ST and Amiga to let us all explore the award-winning 'Freescape' system of solid 3D landscapes, billed as "the nearest thing yet to being there". What this'll mean on our 16 bit beauties is open to the imagination. Will you ever come back once you've got there We'll tell you when we've been there.

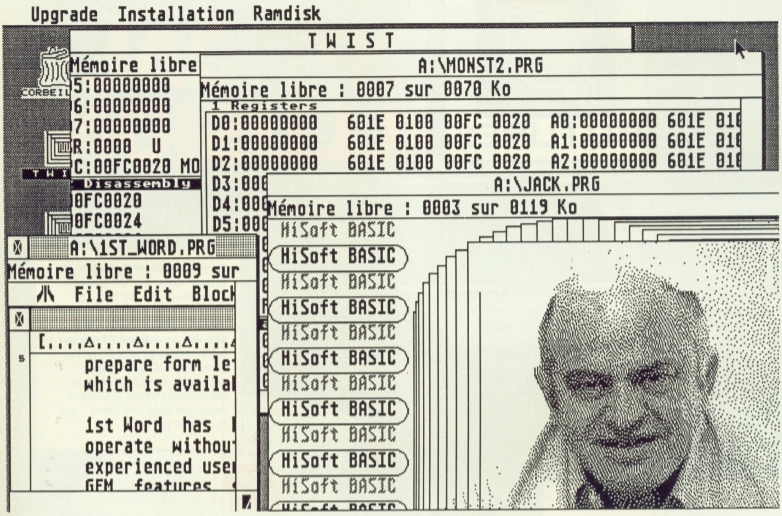
More on that link-up between **Strategic Simulations** and **TSR** that's already brought you Pools of Radiance. Apparently the five year plan is to do a range of games allowing you to build up your alter ego's attributes in the early releases, and then be able to transfer them to other games as they come out. That way it's not like starting all over again each time. Neat eh?



And last on the list of screenplays-yet-to-be comes news of the follow up to Captain Blood. As yet untitled, it features Star Wars (the movie) style bombing runs down those canyons. Maybe by the time it's released you'll have completed the original. Someone, somewhere quoted 45 hours as the real-time play length of **Blood** – ridiculously low, it must have been one of the programmers.

Let's Twist Again ...

and again ... and again ...



and again ... and again ... and again ... and again ... and again ... and again ... and again ...

TWIST is an amazing new ST switcher program that really works! We needed one ourselves, so we looked at all the programs available and only **TWIST** (from France) worked consistently ... so we bought it! Now we have produced the English version and just look at all these features:

- ✓ keep up to 14 programs in memory at once (memory permitting) and switch between them, instantly
- ✓ mix programs with differing resolutions
- ✓ work with both GEM and non-GEM applications
- ✓ Install your programs to run in whatever RAM space that you like or that your programs need
- ✓ **TWIST** at the press of a key or a click of the mouse
- ✓ Common, installable RAMdisk included
- ✓ Above all this ... it works!! again ... and again ...

If you ever thought it would be useful to have 1st Word & Degas Elite together or Tempus, DevpacST & Personal Pascal or Superbase & K-Spread then **TWIST** is for you!

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Expiry Date: Signature:

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SA 8/88

FUTURES

OPTICAL ILLUSIONS

■ Optical discs are available in several sizes: 4.5" CD (capable of one hour of audio play), 5" CDV single (capable of six minutes of combined audio visual play with an optional 20 minutes extra sound), 8" CDV EP (allows 20 minutes of audio visual on each side) and 12" CDV LP or Laservision (carries 2 hours of combined sight and sound – one hour each side).

Big on storage, big on sound, big on image – and big on prestige – compact discs and video discs are the way forward for data storage. Richard Monteiro looks and listens to laser disc lavishness.

Imagine the complete Oxford dictionary, Roget's Thesaurus, the Bible or the cartoon game *Dragon's Lair* on one disc One laser or optical disc to be precise. That's the attractive alternative to magnetic media (cassettes, floppy disks, hard disks, open-reel tape and so on). Magnetic media is undoubtedly, at present, the most popular method for storing data; audio, visual or otherwise. But it's old hat, prone to error and slow.

Although still in its infancy, laser disc technology is advancing apace and prices for such power are plummeting. Pioneered and subsequently marketed in 1982 by Philips, compact discs (and to a smaller extent video discs) revolutionised the record industry; it was there the laser disc first found a home. By 1985 IBM PCs could be fitted with a compact disk interface and users could choose from a handful of read-only CD data products.

Today – for a fee – you can connect a video disc player to your Amiga and with specialist software in control, you can conjure spectacular visual delights. A few notches over the £100 mark buys you software and interface to connect a video disc player to an ST. Supplied free is a video disc game which can be run and controlled via the micro. Atari themselves have CD goings-on: a compact disc player and control software will be available very soon. CD software is expected from various sources.

Magnets to beams

The original floppy disks were eight inches in diameter and held around 90K. Today a high-capacity floppy disk can hold 10Mbytes of data and

■

INCH WAR

The 12 inch video disc, and in particular the read-only video disc player, never caught the imagination of the British buying public – the poorer quality read/write video cassette recorder being the firm favourite. Video discs are mainly used in interactive training, arcade games and professional Pop-videos. The video disc's flop, incidentally, spurred Philips and Sony to greater things, the compact disc.

■

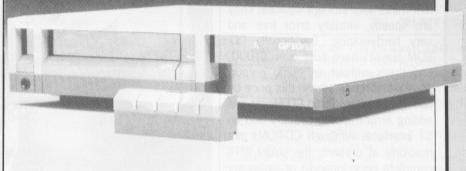
ever-so-expensive hard disks can manage 500Mbytes. Compared to the latest in optical storage research, that's peanuts. Compact disc storage offers a whopping 800Mbytes and a Laservision disc can store a gigabyte (1000 Mbyte)! Incredible when you consider their respective sizes: 4.5 and 12 inches. 800Mbytes is the equivalent, in data terms, of 2500 100-page issues of Format *(Ah, bliss! – Ed)* or 500 novels.

Because the narrowest read-head available – a laser beam – is used to retrieve data from an optical disc, lots of information can be held in a very small area. The surface of an optical disc consists of reflective and non-reflective pits. These two states easily translate to binary 0 and 1 respectively – ideal for computer and digitised data.

The microscopic information is protected against dust particles, finger prints and scratches by a clear plastic coating. The laser focuses on the information which is buried more than a millimetre under the transparent surface. So, even if dust or scratches appear on the disc, they have no effect on stored data as they're not at the focal point of the beam. There's no need to hold the disc by the rim; you can plant your sweaty palms anywhere on the surface and you won't cause any damage. This protection, coupled with the fact that nothing touches the disc to read it, make optical media very safe and durable.

While the large capacity and seemingly error-free format of optical discs may seem ideal for computer use, there are drawbacks. Current laser disc players are not cheap and are read-only (see panel), software is scarce and even the manufacturing process is relatively expensive. These problems are all being researched at the moment. In the meantime, though, there are still no better mass data retrieval systems.

CD-ROM FROM ATARI



Atari's much publicised but little seen CD-ROM player cum audio player is rumoured to be in the hands of developers – in other words, it's still months away from actual release. A very agreeable £399 tag has been given to it.

The CDAR 504 player interfaces to the DMA or hard disk port of any ST. Control software makes full use of GEM which means information retrieval is painless. Direct connection to a standard hi-fi is similarly possible – with control via detachable infra-red controller.

The player can store 500 Mbytes (over 100,000 pages of A4 text) with a load time of 153K per second. Computer data errors are kept to a minimum, one in every 10^{12} bits of information, by clever error-correction circuitry created by KnowledgeSet (whose MD is none other than Gary Kildall, creator of CP/M).

Several software houses have expressed an interest in releasing CD software including Kuma, GST and Pergamon. The most likely titles to appear will be encyclopaedias, dictionaries, reference works and information databases.

Big discs, small discs

Video discs came about at the start of the video boom. Since it was impossible, at that time, to produce a player that could record as well as playback, the video disc lost out to the video cassette recorder, which could do both. Since then laser discs have cropped up in a few specialised areas: interactive applications (like British Aerospace's Tornado ground crew training program and the BBC's Domesday Project), reproducing Pop videos on large screens in night clubs and in the odd arcade game. When hooked to a micro, running suitable controlling software, the capabilities of a video disc system allow the display of moving pictures, still frames and text, all with audio accompaniment.

Video disc technology is by and large restricted to professional applications because of its cost (around £1000 at today's prices, although models that have been out of production for a while can be picked up for

FUTURES

EARLY BIRD

WORM (Write Once Read Many) discs store data in much the same manner as a CD-ROM: as a long spiral of pits in a reflective metallic layer. The discs are larger, 5.25 inches, and the layer made of a special alloy of Selenium-Tellurium sandwiched between two sheets of glass. The material is mounted in a protective cartridge. The metallic film is designed to evaporate and produce small pits when exposed to laser light. WORM drives and interfaces aren't available for ST or Amiga micros, but at £3000 is this a problem?

PRESS FOR ACTION

Only two companies in Britain – Microvitec and Philips – offer a video disc pressing service. Philip's turnaround for a single 12 inch disc is roughly 21 days. That will cost you over £1000. Delivery in four days doubles the price. Microvite can do the same job for around £400; but the Philips disc will have far fewer drop-outs (corrupted data areas).

Compact disc manufacturers are far more numerous. One such firm, Pergamon Compact Solution (another company in Maxwell's large corporation), can take your raw data, format it and record it on CD-ROM. Several factors affect cost: amount of formatting or tidying required, size of data and number of discs to be pressed.

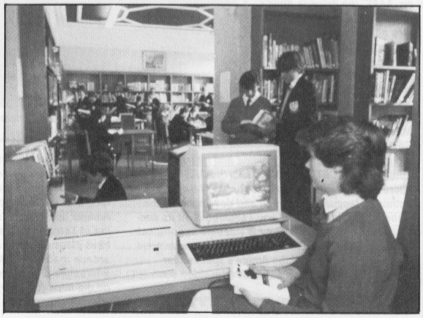
DOMESDAY REVISITED

To commemorate the 900th anniversary of the Domesday Book (commissioned back in 1086 by William the Conqueror, who wanted to know what and whom he owned in Britain), the BBC, Acorn and Philips created the ultimate computer interactive video application, the 'Domesday Project.'

The project, of national proportions, was conceived by BBC producer Peter Armstrong. It is a comprehensive encyclopaedia of Britain in the 1980s and includes among its information – stored on two video discs – details of housing, land use, society, economics, industry and environment. This huge work comprises 23,000 stills, 10,000 sets of statistics and 1 hour of video sequences.

The massive database is organised around Ordnance Survey maps of the British Isles. By using a simple input device – a mouse or tracker ball – it's possible to zoom in from the whole British Isles to county level, to city level, to street level.

Only BBC and RML machines can take advantage of this system which comprises LaserVision player, two Domesday discs, colour monitor and one of the micros. Price is around £4000 – a fraction of the multi-million pound investment.



about £300). Microdeal are the only company selling interactive video to the consumer market, but even their product for the ST – which consists of interface, software and "free" Dragon's Lair video disc – drops in at £120 and assumes you already have the player.

Compact discs, apart from their obvious audio capabilities, are excellent mass data storage devices. They are speedy, virtually error free and very hard-wearing. Traditionally CD-ROM players have cost over £1000, and that's without an audio output. Atari are about to smash this price by taking a standard audio CD player and adding error-trapping circuitry and an ST interface. Although CD-ROMs are read-only at present, the luxury of a complete encyclopaedia or dictionary at your finger tips is exhilarating.

■ *Curiosity Killed the Cat are great fans of the Philips CDV Combi player – and so they should be as the machine can play all three sizes of CDV disc, standard compact discs and Laservision (12 inch video) discs.*

AMIGA TO AEROSPACE

Ariadne Software should ring a few bells with readers. They were the original implementors of the Microtext authoring system on the BBC, Commodore 64 and Apple computers. More recent ventures include the implementation of Commodore C64 terminal code for Compunet's interactive network and creation of the acclaimed Kickstart Guide to the Amiga.

Amigas are big news for Ariadne, who have sunk time and money producing impressive authoring tools for use with Interactive Audio Visual (IAV) systems.

"Up until 1985 we were a research and development establishment.", reminisced Hanafi Houbart, Ariadne's Interactive Design Manager, "It was around then that the Amiga first came out. Commodore International approached us to write a series of notes on how the machine worked to help software developers. The Kickstart Guide came later."

With this background it made sense for Ariadne to market their own Amiga products – which indeed they did.

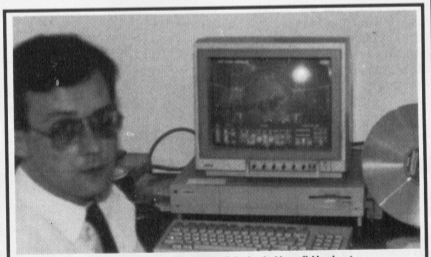
"Many people have problems programming the Amiga because there are a hundred and one things to keep track of; libraries, windows and so on. AAAE, the Ariadne Amiga Application Environment, handles all this automatically. At least a year of the two years we spent on interactive products was used to develop this software shell."

Two new software packages which use AAAE are Microtext and Video Player Device (both are authoring tools for computer based training and interactive audio/video – CBT and IAV for short). AAAE Microtext is Ariadne's implementation of the level 3 authoring language designed and developed by the National Physical Laboratory, Teddington. At its simplest Microtext can be used for video titling; originally this was restricted to text only. Ariadne have gone one better and allowed the Amiga's spectacular graphics and sound to mingle with the video disc images.

AAAE Video Player Device (VPD) is a general purpose driver that allows almost any video player to be controlled from an Amiga via a serial link, using just one universal set of instructions. It's a software system enhancement that uses loadable player drivers in the same way as printer drivers. VPD can be accessed from most programming environments including assembler, Basic and C. A powerful macro system exists whereby groups of complex commands can be saved and used later in application development.

Are you interested? Well, first you need an Amiga and monitor (minimum cost £700), then a video disc player (upwards of £1000 new) and finally Ariadne's software (£575 for Microtext and £402.50 for Player Device). In total you're looking at £3000 plus which, say Ariadne, is a fraction of the cost of a similar hardware offering from IBM.

But who would use this technology and for what? Several large conglomerates, including British Aerospace and Virgin, have looked long at hard at Ariadne's video disc control software and have come up with the same conclusion: it's good. So good in fact, that British Aerospace in Warton, Preston, use Amigas and Ariadne's software for interactive training of Tornado aircraft ground crew. Virgin also have plans for using Ariadne's software in interactive arcade machines. Although William Beckett, head of interactive projects at Virgin, wouldn't name games, he did hope for a playable machine by the end of the year.



■ *All things interactive are handled by Ariadne's Hanafi Houbart.*

Read today, write tomorrow

Several companies like Sony, Hitachi and 3M are investing large sums into the development of optical media that is both readable and writeable to the same level as today's floppy disks.

Tandy in Santa Clara, California, appear to have forged ahead with their announcement of Tandy Thor-CD – the first multiple read/write optical disk. Tandy say that audio, video and computer data can be stored and erased on their new discs which are compatible with all existing audio CD and CD-ROM players. Current players can read the new discs, but can't write to them as they lack the appropriate circuitry.

This exciting breakthrough could mean the beginning of the end for magnetic media. Tandy are going to pursue their achievement by producing an audio read/write CD player. They envisage an initial price of $500 (roughly £300). Read/write CD-RAM players should follow shortly after.

Philips are moving in another, equally thrilling, direction: Compact Disc Video. CDV is an extension of compact disk technology – pure digital sound with the addition of high quality video pictures. Philips first CDV player, the CDV475, due in September, is expected to sell for under £500. It will play the five-inch CDV single, eight-inch CDV EP and 12-inch CDV LP or video disc. The EP and LP are recorded on both sides.

Imagine being able to keep a list of the names, addresses and postcodes of every person in Britain on an updatable disc *(Worrying, isn't it? – Ed)*. Imagine the ultimate interactive game with true television-quality pictures and scintillating stereo sound. The potential is great, the technology is a stone's throw away. The optical disc revolution has started.

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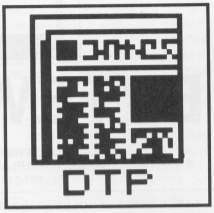


MOULD THE FRONT PAGE

Desktop Publishing gives you complete control over the pages of a newsletter, brochure or manual. With inexpensive software on ST or Amiga you can design and compile pages to exactly your own requirements. Simon Williams and Ben Taylor pick out the best of the current software and hardware.

Desktop Publishing (DTP) takes word processing to its logical conclusion and gives you full control over page layout, typography and graphics. Atari have already realised the potential market and have released their complete DTP system. Commodore are even now gearing up for an Autumn launch and making a final decision on the choice of laser printer and software to bundle with their Amiga DTP kit. Lasers are not obligatory for DTP, but the output quality is so much higher than even a 24 pin dot matrix that business users normally feel the extra money well worth it.

ATARI LASER PRINTER
£1379.99 (SLM804 Laser printer alone)
ATARI DTP SYSTEM
£2874.99 (Mega ST 2/floppy disk), £3449.99 (Mega ST 4/hard disk)

Atari announced the release of an inexpensive laser printer, the SLM804, in the middle of last year, and true to their word the machines started to appear at the end of 1987. The complete DTP system consists of a Mega ST (either 2 Mbyte or 4 Mbyte), an optional hard disk drive and the laser printer itself. Mirrorsoft's Fleet Street Publisher is bundled with the system (see separate review) complete with drivers designed for the SLM804.

The laser printer, like most examples of the ilk, is built like a tank with the turret missing. In place of the turret is the paper exit path letting sheets of paper out from the bowels of the printer. Paper is feed in either from a 250 sheet cartridge which slides in at the base or through a slot just above it which takes single sheets.

Below the hinged panel at the back of the printer are the only two controls, which alter print density and drum-type, and sockets for connecting it to the mains and the interface box. The interface is provided with the printer and ensures the ST can communicate with it. It's very much a grey 'black box', with the only signs of life being two leds on the front panel showing POWER and BUSY.

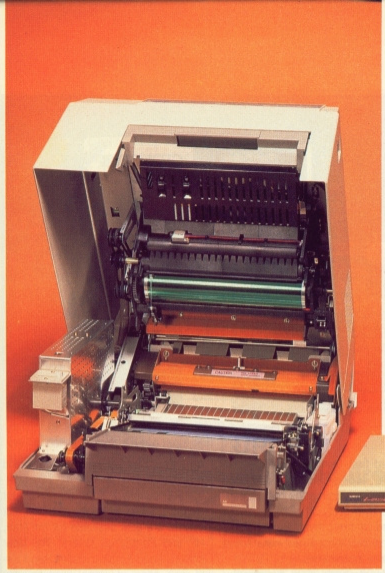
Delving inside the printer by lifting the top cover reveals the drum and laser engine. Unlike the innards of dot-matrix printers, which their manufacturers like to keep you well away from, you need to become familiar with the internals of lasers as you'll

HOW IT WORKS

Contrary to popular belief, laser printers do not burn the image onto the paper with a laser beam. All the little ovals in the middle of the 'o's would fall out if they did. The process is, in fact, very similar to a photocopier. It runs roughly like this:

An image of the whole page is first created in an area of memory (you need around 1MB) set aside for the purpose. This is a straight dot-for-dot image with each bit set 'on' for a dot and 'off' for no dot. This memory is usually located in the printer itself and is one of the reasons for the high cost of lasers. The Atari SLM804, though, uses part of the Mega ST's memory for this purpose, which makes it cheaper.

Once the page has been built up as an image in memory, it is transferred as pulses to a laser beam, which scans a specially coated drum within the printer. The coating, usually of Selenium, has been electrostatically charged before reaching the laser scan, but the beam removes the charge wherever it hits the drum leaving a mirror image of the dot pattern as areas of charge on its surface. The drum continues to rotate and passes the hopper of electrically conductive toner (powdered ink). The toner is attracted to the areas of charge on the drum and sticks to it. The drum now comes into contact with the paper which is passing through the printer and the toner transfers from the drum giving a positive impression on the paper. The charged areas of the drum are then discharged with a very high voltage and the whole process starts again on the next revolution. The paper passes through two high temperature rollers which fuse the toner to it permanently, and the printed page rolls out of the printer.



■ *The Atari SLM804 laser printer inside and out*

need to change the hopper for the toner (the fine powdered ink used by laser printers) and printing drum at 3000 and 9000 sheets respectively, and detailed instructions are provided in the manual.

In use

As well as the hardware, and a copy of Fleet Street Publisher for the DTP system, four disks of software are supplied with the SLM804. Two of these provide a range of fonts in a variety of sizes, so that the output from your favourite word processor looks good. There's also a special GDOS driver program so that GEM can make use of these fonts. The final disk contains a Diablo printer emulator, so that you can install the aforesaid favourite word processor for a printer it has heard of. With Diablo emulation, the SLM804 produces typewriter-style script. The disks also include a utility program, SDUMP, which produces a laser screen dump by pressing [Alt] and [Help].

The quality of output from the laser is very good in comparison to other forms of printing and has the combined advantages of quality print and graphics capability. It's not perhaps up to the standards of more expensive lasers, particularly in respect of areas of solid black, which can look a little washed-out, but output is fast and well integrated with both the Diablo emulator and Fleet Street Publisher's custom-made drivers. At a little over £1000, the SLM804 is excellent value for money. Bear in mind, though, that you can't use the printer with any ST less than a Mega ST2, nor indeed any computer other than an ST.

DTP software packages for both machines vary considerably in range of features and ease of use so we've compiled an extensive set of criteria which you might like to consider before buying. These categories are outlined later in this survey, and are accompanied by a comparative table showing you at a glance which package is likely to be the most useful for your particular application.

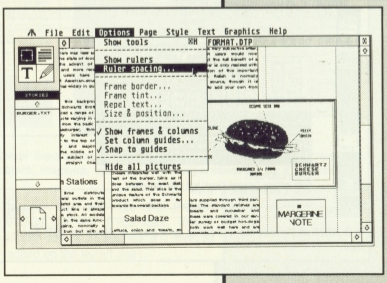
ST

FLEET STREET PUBLISHER
£125 ■ Mirrorsoft
■ All STs

Fleet Street Publisher (FSP) received a terrific boost when Atari adopted it as its preferred DTP and bundled it with their Mega ST and laser printer system. The system concentrates on typography at the expense of 'fripperies' like graphics and multi-page printing. The package comes on three disks, one of which has to be used as a 'key' each time you run it – irritating. The manual is well written and includes useful sections on publishing and a complete catalogue of the supplied clip-art. The index is large, but never seems to include references you actually need.

Installation is quite a painful procedure involving a lot of file and folder copying and would benefit from a more comprehensive installation program. Once into the program, though, things get rather easier. Like most DTPs, FSP asks you to define blocks into which you put text and graphics, but unlike several other programs of the type, it doesn't automatically reflow text when you lay one block over another. It's important, therefore, to design your page correctly before you start to fill it.

Text can be added from the keyboard or by importing an ASCII file from a word processor, and it is automatically hyphenated as it is placed



■

WHAT ARE THEY ON ABOUT?

If the terminology in these pages confuses you, it must surely be because you haven't read the introductory article in issue 1. Your name has been noted, but we'll overlook it this once. Here's a brief recap of some of the polite terms used in DTP:

Font – Sometimes called 'face' or 'typeface'. This is the look of the text. Fonts have names like Times (as created for the Times newspaper) or Helvetica. ST Amiga Format is typeset using News Gothic.

Point size – the height of the text. One point is 1/72 of an inch. This margin note is 7 point text, our article headlines are in 45 point text.

■

FSP ORIGINS

Fleet Street Publisher is perhaps particularly hot on typography because it was written by a journalist who had worked on fully-fledged DTP systems at the offices of the Daily Mirror. You certainly need to acquaint yourself with a few typographical terms to get the most out of the program.

on the page. The text can be reflowed if you alter the size of any blocks, but only by selecting from a menu. Text can't be reflowed over more than one page. FSP won't handle multiple-page documents automatically, though you can load several pages at once as memory allows.

Graphics can be loaded into defined graphics blocks and you can hold them on the page at a variety of resolutions, giving maximum reproduction quality on printing. Graphics from packages like Neochrome and Degas are useable, but have to be converted first using a separate utility. There are elementary line and block drawing commands but no geometric shape creation. Graphics can be edited at pixel level, though (only at screen resolution) and rotated in one degree increments.

FSP's strength is in typography and you can set almost any size, width, leading, kerning and text effect you wish. Infuriatingly you have to define your text block for each alteration in turn, but text updates are quite quick and the screen fonts are of a very high standard, particularly on an enlarged screen. The screen can be viewed at any size from 12.5% to 200%.

FSP doesn't provide paragraph styles which can be assigned to blocks of text, but there is a keyboard macro system which allows key sequences to be stored and repeated with a single keystroke. While not as simple to use as styles, it is in some ways more useful as you can record repeated text as well as command macros.

As supplied, FSP prints to dot matrix printers of all persuasions, but drivers are also available for the Atari, HP and PostScript lasers. The laser drivers need to be installed separately, but once in place produce very good quality print, at a typical time of 2 minutes for the test page, which is not at all bad.

For precise control of text on the page and the final look of single or small-run documents, FSP is a very good product at a very good price. The lack of graphics functions and multi-page support are annoying, but Mirrorsoft are looking into both these areas for an enhanced future version of the product.

features	3.0
performance	4.0
ease of use	3.5
documentation	4.0
format value	4.0

FAST FOOD

SCHWARTZ BURGER

In these days of fast food and easy money, some companies are still plugging away at the quality of their convenience products. *Cheeseburger*, the latest from Schwartz Bros. of Bath, sets new standards in gourmet quarter-pounders. Simon Williams tucks in.

CHEESEBURGER
Fries optional. Requires tomato and cucumber relish.
£1.35 ■ Schwartz Bros. ■ Tel N/A-

In the years before burgers when tofu were restricted to egg and chips or steak and tofubay pie there was less active criticism of the nature of the grub on offer. Times have changed, however, and more recently MacDonalds, users have discovered that American-sourced soft food varies widely in quality and nutrition.

Against this background, Bath-based Schwartz Brothers have introduced a range of new burger products varying in cost and content from the basic 1/4 pounder hamburger, through the minority interest fish product, to the top of the range garlic and mayonnaise burger. In the middle of the range is the subject of this review, the straight Cheeseburger.

Action Stations

Schwartz Bros distribute through several outlets in the Bath and Bristol area and the entire product range is always available in stock. All models are supplied in the same functional packaging, nominally a 3.5" burger bun but with an attractive array of sesame seeds and a decorative leaf of lettuce under. Opening the polythene reveals the modular contents of the interior.

All Schwartz Bros burgers contain the same salad treatment but vary the meat and condiments according to product. The meat-dish starts life as a full 5.25", but the manufacturing process ensures a fully-compatible 3.5" finished product. Other cases will find the standard meat dish well able to meet their needs but those with the newer, vegetarian drives will be happy to know that the Schwartz Vegburger is specifically designed for them. Both disks are rated at over 20 bites.

Say Cheese

Cheese has long been a subject of some controversy. Many people like a good mature cheddar slices but with more recent requirements for single sheet feeding it has really lost some essential to switch to the more modern alternatives. Since for speed and economy Schwartz use a modern processor and the cheese integrates well with the rest of the burger, lying as it does between the meat dish and the salad. This is a very important feature of the Schwartz product which goes so far towards the overall package.

Salad Daze

Lettuce, onion and tomato, so often extras with similar products are supplied as standard on the Cheeseburger, and are well put together with a good index. It's perhaps sad to see the cucumber, a feature which helped the Big Mac to prominence, but the total integration of meat, salad and bun are hard to fault at the price.

With Relish

Relish is a very subjective affair, but most users would now agree that the full benefit of a soft burger is only realised with the addition of this important condiment. Relish is normally fitted at source, though it is possible to add your own from jars supplied through third parties. The Cheeseburger range comes with cucumber and relish as standard, covered in our earlier survey of budget hotdogs. Both work well here and are adequate for most connoisseurs. Power eaters, though, may well need to resort to one of the heavier relishes such as garlic and mayo/relish or blue cheese. These are not really the subject of this review, though.

Conclusion

Cheeseburger sets the standard that other products will seek to better. It's a fully rounded piece of soft food with all the right ingredients and at the price it's hard to fault. Delivery is almost instantaneous, ordering is easy, less, are available at 2 minutes 22 seconds notice. All in all a product to sit back and enjoy. And I'll be hungered if I'm going to write any more.

■

■ MARGERINE NOTE

It is important to note that Schwartz Bros use no margarine in their burgers. Vegetarians and people with cholesterol problems take heed.

■

■ *This sample page was made up to look as much like a page from ST Amiga Format as possible (apart from the content). FSP let us get quite close to the real thing, missing out mainly on the exact fonts used in our pages. This page was printed on a top flight Apple Laserwriter II NT printer.*

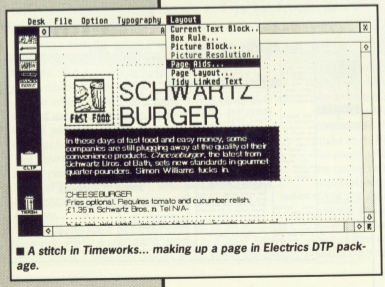
TIMEWORKS DTP
£99.00 ■ Electric/Timeworks/GST ■ All STs

Timeworks Desktop Publisher comes on four disks with a well illustrated but unindexed 120 page manual. Timeworks provides for 9 and 24 pin dot matrix printers, Epson, HP, Atari and PostScript lasers, all drive configurations and medium and high-resolution screen options. The program is not copy protected.

Timeworks makes use of a 'browser' to select paragraph styles, text and graphics files or text effects like bold or italics. It's four work modes are Frame, Paragraph, Text and Graphics, the last offering extensive shape drawing and filling. Frames can be made to snap to column grids, which themselves may be defined from a separate window. This feature alone can be a real time-saver in multi-page documents. Frames can be repositioned at any time and text is automatically reflowed around an overlaying frame.

As wel as an adequate built-in text editor, files from 1st Word Plus and Word Writer can be transferred directly, but text from other word processors can also be imported as ASCII files.

No clip-art is supplied with the program so you'll either have to create your own graphics or import them from other sources. Timeworks supports a number of graphics formats, including Degas and Neochrome, and the conversion is done the first time a graphics file is loaded. The image is initially scaled to fit the frame into which it's loaded, but cropping any part of it automatically rescales the selected area to fit the frame. All images are treated at current screen resolution, but this does mean you



■ *A stitch in Timeworks... making up a page in Electrics DTP package.*

can edit them directly and a magnifying pixel editor is included.

Once text is in position on the page, you can quickly set up its typography using paragraph styles, but you can also use the browser to set common effects such as bold and italics. The entire system is very easy to use once you've developed the self-discipline to define your paragraph styles before composing your document. What isn't so attractive is Timeworks' insistence on putting a blank line between paragraphs.

When you put together a paragraph style you are given the option of adjusting the leading. Under conventional page layout, specifying a leading the same size as the font would give a minimum useful gap between lines, allowed for in the design of the font. In Timeworks this pre-defined gap is much too large and leading values smaller than the font size are ignored. This means that multi-line headlines (and sometimes body text) nearly always look too widely spaced. Another problem is the spacing of words on the screen. If your text is justified, the word gaps appear enormous in Actual Size display, and its true spacing only becomes apparent when you enlarge the view to double size or print the page. This detracts from the main advantage of a WYSIWYG DTP.

Where Timeworks really shines is in its handling of multi-page documents. If your main requirement is for reports, manuals or other documents with a relatively simple layout, Timeworks will suit you well.

■ *A close up of some output from Timeworks. The left side is on an Epson LQ850 24-pin dot matrix printer, the right side on the Atari SLM804 laser printer for comparison. You can see the higher quality of the laser, although PostScript output is better still.*

features	3.5
performance	4.0
ease of use	4.0
documentation	3.0
format value	3.5

DTP

THE PC CONNECTION

Timeworks Desktop Publisher has recently been released on the IBM PC and its many look-alikes. The program is largely the same in both versions, and both run under their respective versions of GEM. It should be possible to swap files between the two, but try it first if this compatibility is important to you.

■

AMIGA

PROFESSIONAL PAGE

£249 ■ HB Marketing/Gold Disk ■ 1MB Amiga

Professional Page (Page) intends to show that an Amiga DTP system can take on a Macintosh and win. It is a comprehensive layout program which produces output intended for PostScript printers. Because the Amiga is a colour computer as opposed to the Mac, which is (usually) mono, Page has set out to exploit the advantage and produce documents for colour printing.

Page comes on two packed disks, and although it is possible to use it with a one-drive machine you certainly need 1 megabyte of RAM. It's aimed firmly at what journalists seem to call the 'power user', meaning that (a) it's expensive, and (b) you need lots of hardware to run it.

Page works on a 'box' system – every object, be it text or graphics, has to be in a box, and you move things around the page by moving their boxes. Boxes can have a background colour (if you want to print text on a red background, for example), can have rules drawn around them, and can be transparent or opaque so that you can put a text box over a graphic box and see the graphic through the text if you want. Text in boxes can be magnified and directly edited on the layout page.

■ *Professional Page can produce Four Colour Separations of colour images for professional offset printing. Here's a final page, with close-ups of the black, magenta, cyan and yellow separations for the King Tut inset.*

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Ogre (Wargame)	24.95	17.50
Silent Service	24.95	17.50
Strike Force Harrier	24.95	17.50
Tenth Frame	24.95	17.50
Super Huey	19.99	13.95

AMIGA SOFTWARE

	RRP	OUR
Arena	29.95	22.95
Aaargg	19.95	13.95
Archon	29.95	22.95
Buggy Boy	24.95	17.50
Backlash	19.95	13.95
Barbarian (Palace)	19.95	13.95
Barbarian (Psygnosis)	24.95	17.50
Battleships	19.95	13.95
Blaster Ball	9.95	7.95
Blacklamp	19.95	13.95
Bad Cats	24.95	17.50
Bonecruncher	14.95	12.95
Crazy Cars	24.95	17.50
Computer Hits	29.95	22.95
Cruncher Factory	9.95	7.95
Deep Space	24.95	17.50
defender of the Crown	29.95	22.95
Diablo	24.95	17.50
Dr. Fruit	9.95	7.95
Drum Studio	9.95	7.95
Eco	24.95	17.50

	RRP	OUR
Faery Tale	29.95	22.95
Football Manager	19.95	13.95
Ferrari Formula I	24.95	17.50
Fused	9.99	7.99
Flight Simulator II	49.95	39.95
Garrison	24.95	17.50
Garrison II	24.95	17.50
Grid Iron	24.95	17.50
Golden Path	19.95	13.95
Goldrunner	24.95	17.50
Guild of Thieves	24.95	17.50
Hacker	24.95	17.50
Hacker 2	24.95	17.50
Impact	14.95	12.95
Interceptor F/A18	24.95	17.50
Insanity Flight	24.95	17.50
joe Blade	9.95	7.95
Jump jet	14.95	12.95
Karate Kid 2	24.95	17.50
Kick Start 2	9.95	7.95
King Of Chicago	29.95	22.95

	RRP	OUR
Kings Quest	29.95	22.95
Knight Orc	19.95	13.95
Las Vegas	9.95	7.95
Leathernecks	19.95	13.95
Marble Madness	19.95	13.95
Mercenary	24.95	17.50
Metropolis	19.95	13.95
Mission Elevator	19.95	13.95
Mouse Trap	14.95	12.95
Ninja Mission	9.95	7.95
Obliterator	24.95	17.50
Pawn	24.95	17.50
Phalanx	9.95	7.95
Pinball Wizard	19.95	13.95
Plutos	14.95	12.95
Pool	9.95	7.95
Power Play	19.95	13.95
Q Ball	19.95	13.95
Romantic Encounters/ pleasure Dome	29.95	22.95
Road Wars	19.95	13.95

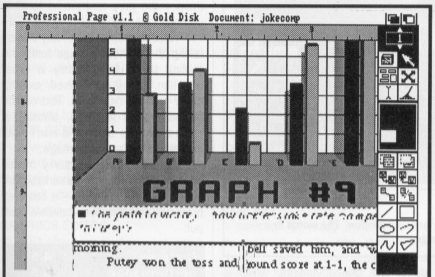
	RRP	OUR
Rockford	19.95	13.95
S.D.I	29.95	22.95
Scrabble De-Luxe	24.95	17.50
Ute Crusty With Bobo	19.95	13.95
Side Winder	9.95	7.95
Sentinel	19.95	13.95
Silent service	24.95	17.50
Sinbad	29.95	22.95
Sky Fighter	14.95	12.95
Space Ranger	9.95	7.95
Star Wars	19.95	13.95
Terramex	19.95	13.95
Terrapods	24.95	17.50
Test Drive	24.95	17.50
The Three Stooges	29.95	22.95
Time Bandit	24.95	17.50
World Darts	14.95	12.95
Wizball	24.95	17.50
Xenon	19.95	13.95

Page uses standard Adobe PostScript fonts for printing. It comes with 20 or so fonts for screen display, but it's up to you to make sure your printer supports the same ones. The PostScript laser printed output is superb, but because Page isn't primarily designed for dot matrix use, the output even on a 24 pin printer is very disappointing, bordering on illegible for sizes less than 10 points.

One of the most impressive things about Page is the way it handles graphics. There is no graphics editor, but you can import standard IFF files, including structured CAD drawings from Aegis Draw. Images are displayed in black-and-white with 16 grey scales, but the colours are remembered for use when printing. The calculation of the grey scales for screen display is excellent, and doesn't degrade at all when stretched or squashed.

There are still a few niggles about Page that could be improved in a future release. One omission is the inability to condense or expand text – stretching headlines to fit a given column width is a common requirement. Things aren't really fast enough either; whenever you move an item the entire screen is redrawn which can take an annoying 5 seconds or more. This is really the Amiga's fault for being slow, but to take on the Macintosh seriously it will have to speed up.

Overall though, Page justifies its 'Professional' tag with flying colours.



■ *Professional Page calculates and displays grey scale versions of colour graphics very well indeed*

features	**4.5**
performance	**4.0**
ease of use	**4.0**
manuals	**4.5**
format value	**3.5**

DTP

■

ADOBE DOBEDOO

PostScript fonts for printers are marketed by Adobe Systems, who don't support the Amiga or ST. You'll have to use a Macintosh or IBM PC to set up your printer if you want to use any fonts other than the printer's resident ones. PostScript printers come with Helvetica, Times, Symbol and Courier, but be warned that extra printer fonts cost around £150 a time!

■

PAGE SETTER

£79.95 ■ HB Marketing/Gold Disk ■ All Amigas

Page Setter is a home-user's DTP package, written by the same people as *Professional Page*. Unusually for a business package, it is copy protected. When you run it you are asked to type in a word from a specified place in the manual, which is tedious.

Page Setter consists of three integrated parts: a text editor, a graphics editor and a layout screen. You are normally in the layout screen which is a standard DTP create boxes/load text/shuffle around setup. You can't directly create and edit graphics or text on the page, but when you click on the text or graphics icons you are automatically taken to the text or graphics editor. After making your edits you return to the layout screen and paste the results into a box.

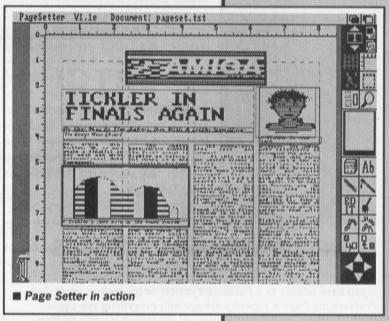
The graphics editor is really quite nice – black and white only, but with fill patterns and spray cans suitable for knocking up cartoons, graphs and diagrams.

There are two main problems with Page Setter. There is no auto-flow of text, so when you place a graphic you have to manually resize all overlapping boxes to make sure nothing gets overprinted.

Second, you can't mix fonts or text sizes within a text box. In other words, if your article is a flow of body copy interspersed with section headings, the section headings have to be in separate boxes from the main text before you can use a different style. However, text boxes can be chained together and moved en masse, so having an article running over 20 different boxes is easy to achieve.

Page Setter's text fonts are taken from the Amiga system disk, so there are no text sizes above 20 point. This makes headlines difficult – you have to use the graphics editor to stretch text and paste it in as a graphic, which can turn out very jagged.

Despite the initial difficulty of editing text in situ, Page Setter is a very simple package to use, and works very fast. Its speed of text reflow is excellent, its graphics editor is good, and the quality of graphics and text on a simple dot matrix printer is good. It's an adequate all-round performer for home users.



■ *Page Setter in action*

features	**3.0**
performance	**4.0**
ease of use	**3.0**
manuals	**3.0**
format value	**3.5**

CITY DESK

£99.95 inc. free clip-art disk ■ Precision Software/MicroSearch ■ All Amigas

City Desk doesn't use the conventional system of layout control at all. You don't create boxes and then place text or graphics in them, the program does that for you as you import files, but you can resize them as required .

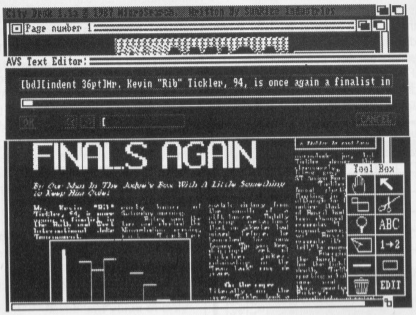
Text editing is strange. If you want to alter anything, like typing errors or text style, you click on 'Edit' and go into the text editor. In this mode you are shown the entire article as one long line of text which you can scroll left or right, and you have to locate the text to be changed from within that.

City Desk works mainly using embedded text commands. To italicise a word, for instance, you have to edit the text at that word, insert `[it]` before the word and `[p]` to revert to plain text after it. This is tiresome to use and a far cry from the ideal WIMP interface where you select the area to be modified and click on 'italic' on a menu.

In fact, every style alteration except font is effected by editing the text. To alter the paragraph indent to

CITY DESK ON THE A500

City Desk will just about run on an Amiga 500. If you only have 512K of RAM, there isn't enough room to print – you have to quit the main DTP and run a separate printing program. In fact, even on our 1MB A2000 the trial single-page document ran out of memory with three imported IFF images. There really ought to be an option not to load full bitmaps but refer to disk files.



■ *Editing text in City Desk is slow with a one-line window. The words in square brackets are formatting commands.*

20 points, you make sure your article begins with the text `[indent 20pt]`. City Desk interprets these square-bracket constructions as commands and doesn't display them. This does have one advantage, which is that you can prepare the text including the style instructions in a word processor and export the complete thing to City Desk. Also, you can mix any number of different styles and fonts in the same text box, unlike Page Setter.

On the graphics front, City Desk's got a passable graphics editor for preparing crude line drawings, but without spray or fill patterns. It can import standard IFF files, although the display is pretty ropey if you resize them – the grey tones tend to fill in unpredictably.

You can create text of any size by taking the standard Amiga fonts and scaling them up arbitrarily in either direction, giving condensed, expanded or just big typefaces. Text can be flowed around graphics, although it moves out in a block – it won't wrap around the edges of an image.

Overall, despite a quirky modus operandi, City Desk is remarkably full-featured and good value – it can even produce PostScript-compatible output.

features	**4.5**
performance	**3.5**
ease of use	**2.5**
manuals	**4.0**
format value	**4.0**

HITCH-HIKER'S GUIDE TO DTP

Good DTPs are very complex programs, and when scanning the list of features in an advert you ought to be asking yourself what *isn't* there! Here are the features we've identified as important – each DTP package is rated on them in the summary table.

MASTER PAGES
If you're creating a document with many pages, you'll want to define a template so that every new page you start has a standard number of columns, a box for a page number and that kind of thing. If your DTP doesn't have master pages, you'll have to layout each page by hand.

LEFT/RIGHT PAGES
For books, you'll want to have two different master pages. For instance, you'll probably want to have the page number at the top left of a left-hand page, but at the top right of a right hand page.

SET FONTS BY TEXT MARKS
DTPs aren't usually very good word processors, so for anything substantial you'll probably use a dedicated WP and import text as a file. DTPs can usually detect bold, italic and underlining in text files, but WPs can't usually change font or text size (although some Amiga word processors can). Ideally you need to be able to specify what font and size to use with a text file marker, such as:

```
\Helvetica\48 Freddie Starr
Ate My Hamster
\Times\10  Top  entertainer
Mr. F. Starr...
```

This might be the way to do a headline in 48 point Helvetica, and the following text in 10 point Times. This saves you going through altering every text item by hand.

PARAGRAPH STYLES
Suppose you have three different basic styles of text: the main body copy might be in 10 point Times, section titles in 14 point bold Helvetica and captions in 8 point bold italic Times. With some packages you can define a style of your own so that you can select an area of text, pick the style from a menu saying 'body', 'headline' or whatever, and the font, size, leading and other style information will all be changed in one operation.

MAX. POINT SIZE/INCREMENT
There's usually a cutoff point on text size – 128 point is a common limit. To get text bigger than this you will have to use a graphics package to stretch it, and import it as a graphic box. Some DTPs insist the point size is a whole number, others allow you arbitrary sizes.

AUTO TEXT REFLOW
When you import graphics and plonk them down so as to overlap a text column, DTPs with auto-reflow will automatically rearrange the text to run around the edges of the image box. Some will also run it round the image itself.

LEADING
Pronounced to rhyme with 'Reading', not 'reading'. This is the space between lines of text.

KERNING
Being able to alter the space between

RECOMMENDED PACKAGES

AMIGA
If you have access to a PostScript printer or typesetter, you'll find Professional Page a superb package with everything you could want. However, on dot matrix printers the output is sadly lacking. Home users will get better quality from cheaper packages – City Desk is the best of the bunch here.
ST
Both Fleet Street Publisher and Timeworks DTP have their advantages. FSP is particularly strong on typographic control, but only has rudimentary graphics creation and no facility for automatically handling multi-page documents. Timeworks specialises in ease of use and repeated page layout. For longer documents it may be the better choice.

CONTACT ADDRESSES

ATARI – Atari House, Railway Terrace, Slough, Berks SL2 5BZ (0753 33344)
MIRRORSOFT – Headway House, 66-73 Shoe Lane, London EC4P 4AB (01-377 4900)
ELECTRIC DISTRIBUTION – 8 Green Street, Willingham, Cambridge, CB4 5JA (0954 61155)
HB MARKETING – Brooklyn House, 22 The Green, West Drayton, Middx UB7 7PQ (0895 444433)
PRECISION SOFTWARE – 6 Park Terrace, Worcester Park, Surrey KT4 7JZ (01-330 7166)

characters. This is particularly useful in big headlines where oddities in letter spacing show up most.

EXPAND/CONDENSE TEXT
A nice frill to have is the ability to expand or condense text. You might want to do captions in 80% condensed text, or stretch a headline to fill the width of the column without altering its height.

AUTO HYPHENATION
A dictionary of common long words and allowable hyphen breaks is built in to more sophisticated DTPs, so that when you flow text into narrow columns the words are automatically hyphenated to avoid unsightly gaps.

GROUP ITEMS
If you've defined half a dozen graphics and text boxes on your page, it's important to be able to move them all as a unit, thus saving you having to painstakingly realign every box.

GRAPHICS EDITOR
All DTPs allow you to draw rectangles and lines, but some also have a mini-paint package built in for knocking up diagrams, graphs and other oddities.

GRAPHICS CROPPING
Cropping is the process of hiding or cutting off the parts of a graphic you don't want to see, without changing its size.

GRAPHICS SCALING
This is the opposite of cropping – stretching an image without losing any of it.

FOUR COLOUR SEPARATIONS
This is the newest thing in desktop publishing. Particularly with colour micros like the ST and Amiga on the scene, people are wanting to include colour photographs in pages. To do this (via a printing company as opposed to a one-off colour dot matrix printout) you need to create four separate pages with the magenta, cyan, yellow and black components of the image. Professional Page on the Amiga can generate these four outputs automatically from its colour page.

GREY SCREEN SIZE
Esoteric but essential for the real power user printing to a typesetter. Altering the grey screen size allows you to control whether the photographs and grey tints you put on pages are printed with very coarse blobs or very fine blobs. You need to set it as fine as your printer will allow.

CLIP ART
A selection of ready made graphics for you to paste into documents. Usually fairly corny images like General Kitchener doing his "Your Country Needs You" act, telephone symbols and street signs. Having ready-made art to hand can speed page make-up considerably.

PAGE VIEW SIZES
Most DTPs allow you to view the page in three or four sizes so you can either see how it looks overall (but not read the text) or edit text but not see a very big area. It's nice if you can specify your own desired magnification so you can exactly control how much is displayed on the screen.

NUMBER OF PAGES
Most DTPs allow you to work on as many pages as your memory will allow, with text running from one to the next. Some only work on one page at a time.

AUTO PAGE NUMBERING
The ability to automatically copy the current page numbers into a particular place on a page. Handy for books and other multi-page documents.

SPECIAL CHARACTERS
Typesetters and laser printers have their own special character fonts for bullets, blobs and triangles, but these aren't normally part of the ST or Amiga character set. Some DTPs provide these extra symbols.

WHAT IS POSTSCRIPT?

Most printer users will be familiar with the idea of a 'printer driver' – PostScript is effectively the industry standard printer driver for laser printers and phototypesetters.

PostScript's strength is that the DTP software sending the file for printing need not know anything at all about the printer's output resolution – it sends the file in as a 'page description' which the printer simply reproduces to the best of its ability. You can print exactly the same file to a 300 dots-per-inch laser printer and a 1270 dpi phototypesetter and it will come out at each one's maximum resolution.

This is because when drawing graphics, conventional Epson dot matrix-type drivers send explicit instructions like 'print a dot at such-and-such a place', whereas PostScript says 'draw a circle, radius x, centre y' and leaves the printer to sort out the rest.

The down side of this is that PostScript is very complex and printers need a built-in microprocessor. The Apple Laserwriter has a 68000 micro inside it to do its PostScript printing – effectively a dedicated ST or Amiga! This makes PostScript laser printers very expensive – £5000 or more.

ARCHAIC STYLES

Current printing processes stem from mediaeval times, as does much of the jargon. Leading, you will recall, is the space between lines, and is pronounced as in the metal Lead. This term stems from the days when text was set up on the presses as rows of individual letters on blocks. To adjust the inter-line spacing the printer would put a thin strip of lead between the rows. The more strips of lead, or the bigger the leading, the bigger the line spacing.

THE FORMAT CHECKLIST – HOW THEY COMPARE

	Prof. Page	Page Setter	City Desk	Fleet Street	Timeworks
Price	£249	£79.95	£99.95	£125	£99
Min. hardware required	Amiga, 1MB	Amiga, 512K	Amiga, 512K	ST 520	ST 520
Printers supported	PostScript & Amiga drivers	Amiga drivers	PostScript & Amiga drivers	9,24,SLM804 HP, PS	9,24,SLM804 HP, PS
Master pages	y	n	n	y	y
Left/right pages	y	n	y	y	y
Set fonts by text marks	y	n	y	n	n
Paragraph styles	n	n	n	n	y
Max. point size/increment	127pt/1 pt	Amiga fonts only	Arbitrary	250,.01	72,arbitrary
Auto text reflow	y	n	n①	n①	y
Leading	y	n	y	y	y
Kerning	auto, manual	n	n②	manual	manual
Expand/condense text	n	n	y	y	y
Auto hyphenation	y	n	n	y	y
Group items	y	n	n	n	n
Graphics editor	n	y	y	y	y
Graphics cropping	y	y	y	y	y
Graphics scaling	y	y	y	y	y
4 colour seps	y	n	n	n	n
Grey screen size	y	n	n	n	n
Clip art provided	n	y	y	y	n
Page view sizes	5	3	6	lots③	4
Max pages in doc.	memory	memory	memory	memory	999
Auto page numbering	n	n	n	n	y
Special characters	y	n	y	y	y

① There is a command to *manually* reformat the page
② There is kerning control in PostScript mode only
③ Screen magnification from 12.5% to 200% in .5% increments

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1040 STFM with mono monitor	£529.00
Mega ST2 with mono monitor	£849.00
Mega ST4 with mono monitor	£1099.00
Atari SLM804 laser printer, great value at	£1099.00
Atari SM124/5 mono monitor	£119.00
Atari SC1224 colour monitor	£349.00
Atari SH205 hard disk, new style	£539.00
Atari Mega ST2 Special Offer; includes Mega ST2 with mono monitor, SLM804 laser printer, 'Microsoft Word' and 'VIP Professional'	£1699.00
Atari DTP system - includes Mega ST4, Mono Monitor, SLM804 laser, 'Fleet Street Publisher', 20Mb hard disk & 90 day on site maintenance	£2499.00
Phillips CM8833 colour monitor c/w ST lead	£279.00
Phillips CM8852 as above, higher resolution	£299.00

(Extra £10.00 discount on Phillips monitors if bought with an ST)

All ST prices include: mouse etc. PLUS 5 disks of s ware including wordpro, utilities, graphics, game and demos.
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All prices include VAT, delivery and cable

star

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Star LC24-10 New feature-packed multifont 24 pin printer! check availability	£319.00
Star NB24-10 great value 24pin inc. FREE sheet feeder + 2 extra ribbons	£469.00
Star NX-15 budget wide carriage printer	£319.00
Star NB24-15 wide carr.version of NB24-10 inc. FREE sheet feeder!	£599.00
NEC P2200 budget 24pin, great value 168/56cps	£319.00
Amstrad DMP3160/3250DI good value 10" with serial/parallel interfaces	£189.00
Amstrad LQ3500 24pin at low price	£329.00
Amstrad DMP4000 fast wide carriage	£329.00
Panasonic KXP1081 reliable budget 10" printer	£179.00
Panasonic KXP1082 faster version, inc.IBM proprinter emulation	£219.00
Citizen 120D good value 10" 120cps	£149.00

Low cost cut sheet feeders for above printers available - please phone for details

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25 bulk disks as above	£27.95
10 disks as above with plastic case	£13.95
25 disks as above, with 40 capacity lockable storage unit	£34.95
Verbatim DS/DD disks, top quality media with lifetime guarantee. Box of 10 only	£19.95
SKC MF2DD DS/DD 3.5" disks. Box of 10	£17.95

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REVIEW

K-SCOPE

Most peripherals for the ST are concerned directly with the computer's capabilities. Kuma's newest offering is rather different, as it aims to convert your micro into a completely different piece of laboratory equipment. Simon Williams broadens his scope with this strange metamorphosis.

K-SCOPE

ST Only. Requires mono monitor
£199.95 ■ Kuma ■ 07357 4335

When you get hooked on computing it's easy to divorce yourself from neighbouring areas of interest, such as electronics. If you're still keen to build your own audio equipment or experiment with music, though, one of the most essential pieces of test equipment is an oscilloscope, and you can save yourself a good few pounds by wiring your ST up for extra duties.

Unlike conventional scopes, which bristle with knobs, verniers, sliders and sockets, the hardware of the Kuma unit is simplicity itself. A small cream box plugs into the ST cartridge port and two BNC connectors on the front panel take a probe lead to connect the unit to the outside world. The manual is really geared towards the knowledgeable user – it would have been good to see a tutorial section explaining the main features of an oscilloscope and how K-Scope provides them. This simple addition would help to open up the product to a much wider audience.

Sounding out

K-Scope's basic operation couldn't be simpler, although it only works with high-resolution mono displays. Once you provide a suitable analogue source to one of the input channels and select the display of one or both traces, clicking on the trigger button samples the incoming signal and displays it on the screen. The sample spans either 2 or 10 screen widths and you can scroll along its length. The time taken to capture a signal depends on the timebase you've set and the length of the sample.

The scope trace shows a frozen snapshot of the input signal, not a constantly changing real-time display. This is a shame, but by way of compensation you can select to repeat your sample automatically which does show changes in irregular waveforms. Although even the ST's high-res display is not high enough to completely smooth a simple waveform, the approximation is good, and you can read the amplitude and frequency from the display grid quite adequately.

A number of options are available within K-Scope, including the ability to explode the trace display up to the full screen size and an output signal sent to a spare video line from the ST, which can be used to trigger external equipment, such as a camera.

Where to now?

The obvious use of K-Scope would be in the classroom, where its ability to sample and redisplay waveforms would be very useful. This function would be greatly helped by the ability to save samples to disk – Kuma say they plan to implement this soon. The keen home-project enthusiast could also make use of it, but here the restriction is the speed of A to D conversion, which effectively limits the frequency range to around 100kHz, or mainly audio work.

For all that, a twin beam, sampling oscilloscope for under £200 must be good value and is likely to find it own niche with progressive (ie. not BBC Micro-obsessed!) secondary schools.

■ *Reproduction of a pure sine wave in the ST's high-resolution mode is quite reasonable.*

■ *The convertor box plugs into the side of an ST or Mega ST, but you have to supply your own probe and cable.*

WHAT MORE TO K-SPECT

Kuma's oscilloscope package is only half the story. The same analogue to digital convertor forms the basis of another package suitable for scientific or educational work. *K-Spect* is a frequency spectrum analyser – this is great for splitting up square waves, music or other non-sinusoidal waveforms into their fundamental frequencies and a range of harmonics.

The good news is that the whole package costs the same as K-Scope (£199.95) or £89.95 for the software on its own. If you buy both packages together you can have them for £289.90 (that's £199.95 plus £89.95 in case you hoped for a discount).

for

- **Simple GEM-based operation**
- **Same hardware can be used for a Spectrum Analyser**

against

- **No probe leads supplied**
- **Display is a snapshot, not real time**
- **No method of saving samples to disk**
- **Limited frequency range**

features 0 1 2 3 4 5
performance 0 1 2 3 4 5
ease of use 0 1 2 3 4 5
manuals 0 1 2 3 4 5
format value 0 1 2 3 4 5

SPREADING: THE WORD

What if the rates increase on our offices? What if sales decline over the summer? What if the sky falls on Chicken Licken? It's just this kind of projection that is tedious to work out by hand, but a dead cinch for a computer spreadsheet. Simon Williams explains the principles and looks at a new arrival on the scene.

IT'S HISTORY

The original micro spreadsheet, *VisiCalc*, was written by Dan Bricklin in 1979. It is supposed to be largely instrumental in the rise of Apple Computers, as thousands of American businessmen bought Apple II micros purely to run the spreadsheet.

The spreadsheet is the only new category of software invented for the micro-computer. Databases drifted in and were chopped up small to get them into the memories of the young upstart micros; word processors were ripped from their dedicated host computers and squeezed onto home computers, but spreadsheets were written for, and have been largely responsible for, the business micro. The first spreadsheet, VisiCalc, is said to have sold more Apple IIs than any other program and the heir to its thrown, Lotus 1-2-3, has become a self-contained industry on the PC.

But what is a spreadsheet? Sounds like an American duvet – surely they're only of use to accountants and City financiers? Far from it. Spreadsheets are widely used by business people, hoteliers, publishing magnates, in fact anybody who needs to forecast the effects of changes on finance or work load. Anybody who needs to pose 'What if...?' type questions and doesn't have hours to recalculate a series of figures.

Paper and pen

Think of a spreadsheet as a large sheet of electronic notepaper, divided into squares like the arithmetic books you used at school. Now imagine that each square (or 'cell') can contain not just a single digit, but a complete number, label or title. Each number can be related to any other and be dependent on the result of any calculation on the sheet. Finally, imagine that it's the computer which handles all the calculations and that when you change any value on the sheet, all others that make use of it will be automatically updated. You can no doubt start to think of uses for such a program almost immediately – so have hundreds of thousands of other people. The mechanics are really pretty straightforward.

When you load a spreadsheet you are presented with a largely blank screen which is likely to be marked with numbers down its left-hand side and letters across the top. The numbers mark each row of the spreadsheet and the letters indicate the columns. The screen acts as a large window onto a much larger spreadsheet and can be moved around to view any part of it. One of the cells will be highlighted in inverse video (white on black) and this highlight acts as a cell cursor and shows which cell is currently active.

In the cells

The other section of a typical spreadsheet screen is the entry line. This is where you type in or edit the contents of the active cell. It might be a heading, such as January, London or Total Cost, a number used in calculations within the sheet or a formula defining a calculation. In the case of a formula, the entry line shows the algebra itself, while the cell on the spreadsheet shows the result of the calculation.

A formula is written much as you would write an assignment statement in BASIC (if you've never tangled with BASIC read the panel on variables in our BASIC tutorial this month). The main difference is that the variables are all cells in the spreadsheet, which are each described by their letter and number co-ordinates. Thus the cell in the top left-hand corner of a spreadsheet would normally be referred to as A1. A range of cells is normally described by reference to the top left-hand and bottom right-hand cells (ranges can normally only be rectangular in shape). So, for instance, the range of cells bounded by B3 in the

```
B5  :                                                    Last: G15
Attr  Copy  Del  File  Goto  Hold  Ins  Misc  Os  Title  Undo  Width  Quit

   A:          B:      C:      D:      E:      F:      G:
-------------------------------------------------------------------------
 1|                   ST Amiga Format Estimated Expenses
 2|           JAN     FEB     MAR     APR     MAY     JUN
 3|
 4|Burgers
 5|Shows      [      ]
 6|Travel
 7|Petrol Money
 8|Beer Money
 9|Armadillo Feed
10|Eyelid Props
11|          ---------------------------------------------------------
12|Monthly Total
13|
14|Running Total
15|          ---------------------------------------------------------
16|
17|
18|
19|
20|
```

■ *Start by laying out the table and labelling the rows and columns.*

top right and E7 in the bottom left could be described as B3:E7 or B3,E7 or (B3E7), depending on the particular spreadsheet program being used.

To set up a model on a spreadsheet you move around the sheet entering labels, values or formulae into its cells in any order and just about any positions you like. The only proviso is that most spreadsheets calculate the results in each cell in a particular order, usually from top left to bottom right. It's important, therefore, that the formulae you enter refer only to other cells to the left or above the current one. Without this stipulation, you're likely to end up with erroneous results in some cells.

A Desire to replicate

As you build up a model on your sheet you'll start to notice that many of the formulae are very similar. For example, in a sheet of monthly estimates, the formula for total expenditure in one month will be very similar to all the other 11 months' formulae, with only the cell references changed. Rather than having to type very similar formulae into a number of cells, most spreadsheets let you *replicate* a formula from one cell to another, or from one range to another. The program automatically adjusts the cell references for you.

Cell references can be copied 'absolutely' or 'relatively'. To understand the difference, consider this example: suppose you have three cells A1, A2 and A3, and you've set A4 to be their sum, calculated with the formula SUM(A1:A3). If you replicated cell A4 into B4, a *relative* copy would put the formula SUM(B1:B3) into B4, and an *absolute* copy would leave it as SUM(A1:A3). In other words, the relative copy realises the formula is saying, "add up the three cells above this one" and will adjust all the cell references to preserve that fact as it copies.

All these facilities wouldn't be a lot of use without the necessary mathematical functions to include in formulae. Most spreadsheets include a wide range of mathematical and statistical functions, and the more sophisticated products also let you look up values within a range of cells and plot results as graphs.

Graphing abilities are tied into the sheet itself and usually cover line graphs, and bar and pie charts. Preset graphics functions allow you to select rows and columns and plot one directly against another, to screen or printer.

The spreadsheet is a truly micro application and used sensibly in business it can save a great deal of time, not to mention wear on your calculator fingers.

```
B12 :                                                          Last: G15
Attr  Copy  Del  File  Goto  Hold  Ins  Misc  Os  Title  Undo  Width  Quit

   A:              B:      C:      D:      E:      F:      G:
-------------------------------------------------------------------------
 1|                        ST Amiga Format Estimated Expenses
 2|                JAN     FEB     MAR     APR     MAY     JUN
 3|
 4|Burgers          256.00  261.12  266.34  271.67  277.10  282.64
 5|Shows            212.00    0.00    0.00  235.00    0.00  210.00
 6|Travel           313.00   54.00   57.45  367.00   56.87  328.00
 7|Petrol Money     405.00  367.00  343.00  382.00  319.00  333.00
 8|Beer Money       103.00  103.51  104.03  104.55  105.00  105.60
 9|Armadillo Feed   539.00  539.00  539.00  539.00  539.00  539.00
10|Eyelid Props      0.24    0.00    0.00    0.00    0.00    0.30
11|                 ---------------------------------------------
12|Monthly Total
13|
14|Running Total
15|                 ---------------------------------------------
16|
17|
18|
19|
20|
```

■ *Enter the figures in the table,some by hand and others, like Burgers and Beer Money, using a formula.*

```
D12  :  SUM(D4:D10)                                            Last: G19
Attr  Copy  Del  File  Goto  Hold  Ins  Misc  Os  Title  Undo  Width  Quit

   A:              B:      C:      D:      E:      F:      G:
-------------------------------------------------------------------------
 1|                        ST Amiga Format Estimated Expenses
 2|                JAN     FEB     MAR     APR     MAY     JUN
 3|
 4|Burgers          256.00  261.12  266.34  271.67  277.10  282.64
 5|Shows            212.00    0.00    0.00  235.00    0.00  210.00
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 7|Petrol Money     405.00  367.00  343.00  382.00  319.00  333.00
 8|Beer Money       103.00  103.51  104.03  104.55  105.00  105.60
 9|Armadillo Feed   539.00  539.00  539.00  539.00  539.00  539.00
10|Eyelid Props      0.24    0.00    0.00    0.00    0.00    0.30
11|                 ---------------------------------------------
12|Monthly Total    1828.24 1324.64 1309.82 1899.22 1297.05 1798.55
13|
14|Running Total    1828.24 3152.87 4462.70 6361.92 7658.97 9457.52
15|                 ---------------------------------------------
16|
17|
18|                N.B. Burgers increase by 2% per month
19|                     Beer money increases by 0.5% per month
20|
```

■ *Finally, enter the two formulae for the tables and replicate them across the sheet.*

DIGICALC

Amiga and ST ■ ST demo on cover disk

£39.95 ■ Digita Int., Kelsey House, Barns Road, Budleigh Salterton, Devon EX9 6HJ ■ 0395 45059

Digicalc sets out to be an easy to use spreadsheet, providing the most popular facilities without over-burdening the program with extraneous functions or facilities. It started life on the Amstrad PC and has been converted for the ST and Amiga. This has meant some concessions in the use of each machines facilities.

In the box

Digicalc comes packaged in a video cassette-style case which houses a single disk, 30 page manual and quick reference card. The manual contains separate tutorial and reference sections, a glossary and an index. The content is concise but is littered with 'Important Notes' which pull you up rather too often. Many could have been incorporated into the main text to better effect. Coverage of the product is adequate to get you going and includes a useful section on a proper back-up regime for use of the program with important data (the grandparent, parent, child cycle). The quick reference card covers all aspects of the program, once you've familiarised yourself with its operation.

The program itself runs from the Desktop and forsakes GEM almost immediately in favour of its own, more conventional interface. In this respect it's like Protext, relying on keystrokes and commands rather than menus and mouse-clicks. The screen layout is fairly straightforward with an edit line at the top showing the contents or formula applied to the current cell and a horizontal bar menu on the sec-

CELL COUNT

A continuing trend in the design of spreadsheets has been to allow for large and larger cell references. Some products now offer sheets of cells 65535 by 65535. This is obviously much larger than the maximum size of sheet you could hold in memory. It does, however, allow for particularly long or particularly wide sheets. Modern spreadsheets don't waste space storing empty cells, so conserving memory.

SUPPORT

If you return the registration card included in the Digicalc package you get three months' free telephone support and any upgrades that may become available within that time. You can extend this support for a further year by paying Digita a further £20.

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ond line with a number of program options. When any one of these is selected a small explanatory message or sub-menu appears in the third line of the display. The rest of the screen is devoted to the spreadsheet proper with the cell cursor moved with the arrow keys in the normal way.

All sheeted down

A Digicalc spreadsheet can have up to 512 rows of up to 52 columns, and unlike many other spreadsheets you can fill every cell, even in a 512K ST. As you move around the spreadsheet, the contents of the current cell flashes through the edit line and you can edit any cell by typing [Ctrl]E. Commands on the menu can be accessed by clicking on them with the mouse or by pressing [/] from the keyboard, followed by the initial letter of the option.

Several of the menus offer further options from subsidiary menus. The choices are largely self-explanatory, though some of the option titles look a little forced – as if they have been picked for their unique first letter. Thus you have ATTR to change cell or range ATTRibutes, OS to display a directory (being an Operating System function, and D having being used for DEL, to delete a row or column), and MISC for all the options that wouldn't fit under any other heading. Two options which are quite handy are UNDO, letting you recover from an inadvertent edit, and WIDTH, which sizes individual columns to the width of their contents.

Digicalc provides absolute and relative replication and defines ranges of cells with a colon between each reference. like A3:G23. You can insert and delete rows or columns at any point and give each column a text title in addition to its reference letter. You can also assign any command or piece of text to any of nine function keys. This can be particularly useful for repetitive titling, or can be used to provide extra functions not directly available from within the program. Four keys are already defined for you which do useful things like returning to cell A1, displaying a directory of the current drive, wiping the entire sheet and printing out.

You can print the entire spreadsheet results or just the formulae from it, and can include column titles or not. There is also a facility to export the sheet as an ASCII file, but none to import files from different formats. It would be useful, for instance, to be able to import data from the PC's Lotus 1-2-3, since the ST can read PC disks.

MAX + MIN SIN ROUND LOG

When it comes to the supplied mathematical functions, Digicalc has the bare essentials, but nothing spectacular. The standard arithmetic functions are there, plus SQRT, SUM (to total several cells), LOG, LOGTEN, MAX, MIN and EXP. The trigonometric functions SIN, COS and TAN are also there as well as modification functions like ABS, ROUND and TRUNC. The quick reference card heads all these as 'statistical functions, though, which is stretching a point. The only function which can really be claimed useful for statistics is COUNT which counts the number of items in a range. A more important omission is conditional cell testing. It's very useful, for instance, to be able to say 'if the contents of cell A1 is negative, copy 'DR' into cell B1. Bank managers use this a lot when they work out who's run into the red that month.

Against these shortcomings it must be said that Digicalc is very fast. It can recalculate an entire 26624 cells with a simple addition inside 40 seconds. This is quite a spectacular speed, with similarly priced products either refusing to calculate a sheet of that size or taking many minutes to do it.

Digicalc has no graphics facility whatever. While this is not a pre-requisite for a spreadsheet, graphical output is provided by several of the competing products and is very useful for illustrating figures with impact – a bar graph speaks louder than five columns of figures. Digita are bringing out a graphics package later this year which will take files from Digicalc and related business products, but it would still be an improvement to have simple graphing included in the price.

Spreading: the final word

Digicalc is a fast, solid spreadsheet which will provide many people with all they need in this type of product. There are a few shortcomings, particularly the lack of graphics output, but overall most users will find this package good value.

THE COMPETITION

Two of the main competitors to Digicalc on the ST are GraphicSheet from Glentop and MasterPlan, distributed by SDL. Graphicsheet is the same price as Digicalc and as its name suggest, majors on graphic output from it's GEM interface spreadsheet. It calculates considerably slower than Digicalc but has all the pull-down menus and resizable windows that you expect from GEM. It also runs in colour, which you may find of value. The function list is largely the same as Digicalc's with the addition of comparative and logical commands, like AND and OR.

MasterPlan offers just about everything GraphicPlan does, including its GEM interface, and then some. 'Some' in this case is a wide variety of financial and statistical functions as well as the regular mathematical ones offered by the others. It is also particularly good at interfacing with other programs. It can read .WKS files, which means it can directly load Lotus 1-2-3 files, and can output files compatible with Degas and Publishing Partner. It comes in at £89.95.

On the Amiga side, MaxiPlan from Oxxi Systems is the big boy – it goes for about $195, but is fairly full featured. K-Spread 2 from Kuma is the budget choice (£49.95). Users of The Works package given away with the current Amiga bundling deal will also have access to Analyze!, a cheap and cheerful performer.

AMIGA DIFFERENCES

This review is based on the ST version of Digicalc, but the Amiga version is due out by the time you read this and is promised to be a straight port of the program. As such you should expect very little difference between the two, other than the program running under Intuition rather than GEM.

The program is written in C, which makes it easy to convert from one machine to another. It does mean, though, that few of a particular micros facilities are taken into account. To some extent the program has to be written for the lowest common denominator.

TEST CASE

Digicalc lets you set a password for entry to a spreadsheet, to safeguard sensitive data. The password is tested for the case of each letter, so 'AGNES' and 'agnes' won't do if 'Agnes' was stipulated as the armadillo, sorry, password.

for

- Fast recalculation speed
- Holds full sheet entirely in memory, even on a 520
- User defined function key macros

against

- No graphics
- No GEM interface
- No comparison functions

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

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QUICKIES

Learning to spell, or past that stage and learning to type? Either way, there are programs out there that may help. Sue Taylor and assistants try out two.

INTELLITYPE
Amiga only
£24.95 ■ Electronic Arts ■ 0753 49442

If you want to read a racy tongue-in-cheek adventure story from California and become a zowee typist at the same time, then *Intellitype* claims to have it all together.

Intellitype is a very flexible program designed for use as a 30 day course of 45 minute lessons. The manual is easy to read and contains essential advice on the program itself; how to pace yourself and how to tailor the program to your individual needs. It personalises itself to your age, initial skill and visual dependence on the keyboard and lets you set your own priorities, such as speed or accuracy.

The drills themselves are fairly conventional, although the TypeRope drill is worthy of mention: a neatly drawn artiste steps the high wire as long as you hit the right key, though, her digitised screams when you get it wrong could lead the nervous to further error! The main lessons form a raunchy and fast-moving storyline, guaranteed to keep your fingers on the keys.

Intellitype doesn't encourage you to head straight for the most spectacular results, as other more gamey typing tutors do, but gives you solid advice and guidance for better typing habits. One of its most appealing features is its constant reassurance that you're 'doing OK', which minimises any bad vibes from its rapid pointers to your weaknesses. Each lesson recommends a specific correction of posture or finger movement to aid the skill on which the lesson concentrates.

Once a lesson's over you can spend tortuous minutes analysing your errors. The program provides a wealth of bar charts covering your accuracy and speed with each key on the keyboard. Clicking on a given letter's bar calls up your average speed on that key and other handy information.

You'd do very well to find a human typing tutor as thoughtful and perceptive as Intellitype. The quality of analysis and attention to detail are very helpful and its author, Moses Ma (it really is that way round), has certainly put his Caltech training to good use.

features	**4.0**
performance	**4.5**
ease of use	**5.0**
manuals	**3.5**
format verdict	**4.0**

■

RATS FOR ARTS SAKE

After an afternoon's work with Intellitype, you become all too acutely aware of the type of errors you're making. Rats for Arts is a 'transposition' and bbok for book is a 'doublers' error. Other goodies include latency, cross hand and spurious shifting (which isn't fidgetting in your seat!).

■

SPELL BOOK
ST only
£19.95 ■ Soft Stuff ■ 0455 617426

Spell Book comes in a smart little orange folder styled like a child's first school book, with a small leaflet of guidelines for parents. After the usual round of introductions, names, hellos and options for 1 or 2 players, the first screen shows 4 bright pictures, each containing a letter of the alphabet.

Clicking on a picture opens a 'book' with that picture on one page. To spell a word, the child selects letters with the mouse and clicks them into place on a dotted line with one gap per letter of the word. At the end of each try the score is marked up on a separate 'blackboard' screen, and one of five jolly little nursery tunes rewards correct spellings. There's a good variety of words, ranging from 2 – 7 letters, and they're not all the standard old boring ones, like T for Tapir.

It's good to see software for very young children which they can use on their own. It *does* give 5 year olds a great sense of achievement if they are able to operate the computer independently. The main attraction of spell book is that it works entirely with the mouse; beginner-readers don't have to struggle with capitals on the keyboard.

We tested Spell Book on Matthew (6) and Tom (5). They liked the program; they were encouraged by the easy-to-read instructions and enjoyed the graphics too. Some of the tunes were none too recognisable though. The boys were disappointed that the three different levels of difficulty all had the same words and pictures, the only difference being less flexibility in marking. Extra points are not really adequate reward for an ace speller of this age. More pictures are available, but at £9.95 a set.

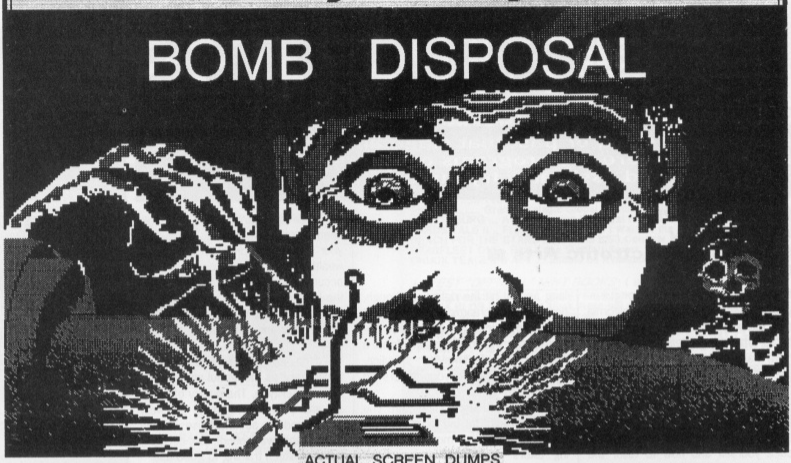
Tom had a bit of trouble positioning letters (you have to hold down the right mouse button as you slide the letter into place); it certainly wouldn't be easy for an impatient 4 year old. The lower level of competence is labelled 'not very good' – a bit of negative psychology in an otherwise sensitive program. It can't be helpful for children to select themselves as 'not very good'. Overall, though, the program has a solid feel to it, and a fresh approach enhanced by the minimum of fussy little extras like smiling faces.

Two companion programs, *Maths Book* and *Shapes and Colours Book*, are due out soon.

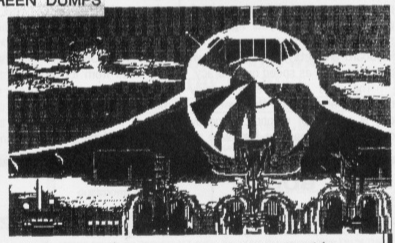
features	**3.5**
performance	**3.5**
ease of use	**4.0**
manuals	**3.5**
format verdict	**4.0**

Dare you Try ?

BOMB DISPOSAL



ACTUAL SCREEN DUMPS



The designers, programmers and artists at Classic Software welcome you to a new concept in computerised entertainment. From the moment you first boot up Bomb Disposal you will realise that this is no shoot 'em up arcade game or graphic adventure game, **you** are the trainee bomb disposal expert, with a steady hand and steel nerves. If you are faint hearted or of a nervous disposition we suggest that you revert to a less nerve racking and explosive game.

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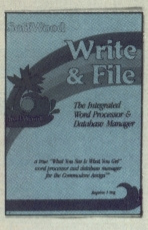
REVIEW

WRITE & FILE

To word process, you need facts; to manipulate data, you need a printout. Write & File seems to offer the ideal solution – an integrated WP and database in one program. Ben Taylor administers the acid test.

Amiga, requires 1MB ■ £99.95 ■ Softwood/HB Marketing, Brooklyn House, 22 The Green, West Drayton, Middx UB7 7PQ ■ 0895 444433



Since there are already 33 million word processing packages available, it's pretty hard for a new one to cause any surprises. However, the WP part of *Write & File* manages to do just this by virtue of a superbly designed screen layout and user interface.

As per most mouse-driven packages, in addition to the menu system there are icons to be clicked-on around the sides of the main work window. Write & File boasts what might be called an 'intelligent mouse' – as soon as the pointer is over any gadget it becomes a small text box explaining what is about to happen. For instance, when you move the pointer into the ruler area the cursor becomes a box saying 'Set Tab', which tells you that if you click there you will set a tab stop.

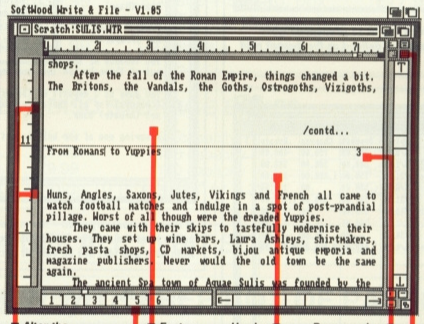
This system is brilliant. The main failing with most WIMP systems is that the icons programmers choose are often clear only to them, so you still have to use a manual to find out what they do! With this explanatory text system, you quickly learn by trial (but not error) what each icon does.

As to the word processing functions themselves, all the basic ones are present and work well. The find-and-replace operation allows you to choose whether the search should be case sensitive or not. Searching is fast, but replacing is slow; to find a word at the end of a 90k document took 10 seconds, to replace a word occurring 30 times in the same document took about 4 minutes. There is no facility to import graphics into documents, nor are there any keystrokes for go-to-end-of-line, delete-current-line, and other editing boons.

The thorny problem of headers, footers and page numbers is handled very well. Initially you have a four line region for headers and footers, but you can alter the depth simply by dragging them to size with the mouse. The header and footer areas are displayed at every page break, so you get true WYSIWYG for each page. There are special options to insert the current page number or date. These aren't once-off insertions of text but are updated dynamically – if used in a header the page number is updated for every page.

Write & File has a large spelling checker with three dictionaries: a 1,500 word 'common' dictionary, a 100,000 word main dictionary, and a user dictionary for your own words. Because the program is so large, a mere 1MB of RAM (!) isn't enough to hold it and the whole dictionary, so spell checking is slow. For some reason when an unknown word is found a requester box appears saying 'Unknown Word Found. OK?' – you've

■ *Write & File's word processing screen.*



■ *Alter the header/footer depths simply by clicking here and dragging them to the size you want*

■ *Footer zone for page 2*

Header zone for page 3 ■

Page number automatically updated ■

■ *Click here to jump to the numbered page*

The justify text left, right, centre or flush, tools ■

MACALIKE

Write & File's designers seem to be Apple Macintosh fans, since it uses a lot of the Mac-standard key shortcuts. Using Amiga-V for Paste, for instance, will confuse many people, but delight Mac users. Also Mac-like, if you've got a block of text selected you can just type away and your new text entirely replaces the old block – a very efficient way of editing.

EVERY SILVER LINING HAS A CLOUD

Despite the extremely high general quality of Write & File's design, there are a few problems.

Most serious is printing in Graphics mode. You can use any Amiga font in a document, and when you come to print you can either print as graphics (for true font images) or as standard ASCII and use your printer's NLQ font. On the review copy the Graphics print mode would not work. Even with a one word document using one font only, there was 'Not Enough Memory' and our A2000 crashed.

Annoyingly for A2000 owners, Write & File doesn't recognise drive DF2: – it assumes your drives are DF0: and DF1: as on an A500. This means you can't have your data disk in your second drive. The program never puts up standard requester boxes if you have the wrong disk in – instead it either waits silently for the right one (and appears to have locked up) or aborts its current command.

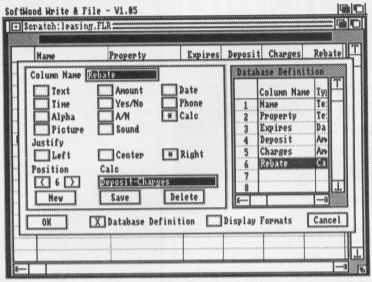
In the database, the calculated field option seemed unrobust. If you alter a numeric field's format, to make it display a £ sign for instance, the arithmetic suddenly ceases to work.

got to click OK *every time* to get to the lookup or replace functions.

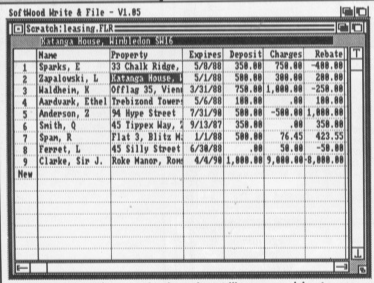
The database

Write & File's database is a fairly simple filing system rather than a super-slick card index to compete with the *Superbases* of this world. It presents its records all at once in a table with one row per record, one column per field. You use the standard scroll bars to move around the data window. It behaves very much like a spreadsheet – you click on the cell you want to edit, and you can enter or edit data in any order.

When you set up the database, as ever you have to name your fields and decide what they are going to be used for – text, dates, numbers and so on. A menu guides you through this, with 11 different types of field allowed. If you choose a date field, for example, data you enter is checked for legality – no 31 day Februaries allowed! Unfortunately, you've got to enter dates in American format, mm/dd/yy. 'Calc' fields have their contents arithmetically calculated from other (numeric) fields in the record. For instance, if running a leasing agency you might define a field 'Rebate' to be the the deposit paid less any charges for damage. You can have up to 32 fields, and you can alter the database structure at any time even after data has been entered.



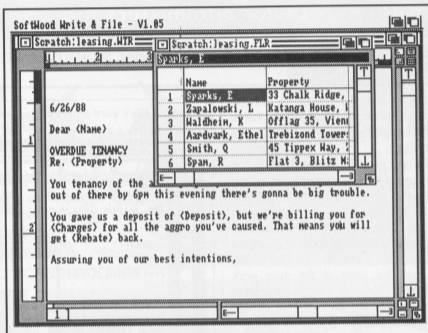
■ *Defining a database. Fields can be any of 11 predefined types including 'calculated'. Here the rebate is defined as the deposit paid minus the charges accrued.*



■ *The database arranges its data almost like a spreadsheet – one record per row, one field per column. Column rules can be dragged by the mouse. You can click on any cell in any order and enter or edit data.*

With an integrated WP and database package, you would expect mail merging to be a doddle, and it is. First you write a template letter, with the names of the database fields in angle brackets, eg. <Name>. You need to have the letter file and the database open at the same time, then in the database you use the Select function to filter your records, for instance, 'All tenants whose leases expired before 5th April 1988'. Selection, and sorting, can be done on any field of the database, and is pretty quick.

Once the data is set up, you click on the Send to WP option, activate the WP window and choose Print Merge. You've got to do a print merge for any database printouts; even to get a simple list of data you would set up a dummy letter with only the field names and print merge that.



■ *Doing a mailmerge run – the names in angle-brackets tell the word processor to read the data from a database field. Multi-window operation means both data and text are on view at once.*

Real partners

One very welcome novelty is that you don't define field lengths at all. Text fields are 64 characters long at most, but you can choose how much of each field you actually want to see when you display it. Using the mouse, you just drag the column rules around as you like. This way you can hide fields altogether if they are irrelevant, or arrange to only see the initial letter of each field.

There is no report generation function in the database; you are expected to use the word processor for all output.

Right & File?

"I have seen the future of word processing, and its name is Write & File." (That's an obscure misquote from horror writer Stephen King, in case you were wondering.) Without doubt, Write & File is the best designed word processing system on the Amiga. Its only drawbacks are that it needs 1MB of RAM, and it seems a bit buggy. Its use of the mouse is exemplary.

The database section links smoothly into the WP, but in itself won't replace a specialised database program. Text fields limited to 64 characters, and the lack of any control over screen presentation of data (eg. a form designer) prevent that.

If you've got a megabyte of memory, and you can live without importing graphics into documents, it's the best Amiga WP there is.

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

format value 0 1 2 3 4 5

for

- Superbly designed user interface
- Good WP including 100,000 word dictionary
- On-screen header and footer display
- Arithmetic in database fields

against

- Can't import graphics
- A few 'implementation problems' (=bugs)

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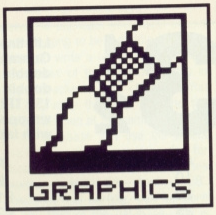
■ *Disney's Tron (1982) created a stir with its mixture of live action and computer animation. The Amiga and ST are catching up fast.*



Computer animation is becoming one of the most promising artforms of the 20th century. Switch on your television and it's a fair bet that within a few minutes you'll see some impressive examples; whether in the title sequences of a gameshow, the animated diagrams of a news report or the artistic indulgences of a high-tech advert. The most interesting examples often combine real images on video with computerised ones created entirely in digital form. Animated title overlays and psychedelic video effects created by such multi-thousand pound systems as Mirage and Harry are the most obvious instances.

Owners of the Amiga and ST are well-placed to become involved in this exciting field, because the 68000 processor at the centre of each micro is the same as that used in the professional graphics workstations. With the decreasing price of video technology such as VCRs, mixers and effects units, it's now possible to create professional-looking computer/video productions in your living room.

Sugar and splice

While anyone can videotape a computer image and intercut it with film, combining the two together requires some complex technology.

As most of you will realise, video images are created by using a scanning electron beam from a cathode to illuminate the yellow, blue and red phosphor dots on the TV screen at different luminance levels. To combine video and computer images meaningfully, you must selectively combine the two sets of colour information, usually eliminating colour 0 in the computer's palette (normally white or blue) to leave 'gaps' through which the video image can show.

It's also necessary to synchronise the timing signals which lock the computer and video to the scan rate of the cathode ray tube. The systems needed to do all this are referred to as 'genlock' hardware. Commodore's own genlock system for the Amiga 500 or 1000 costs around £200, though you can pay up to £750 for a genlock system depending on the type of facilities you demand. Sadly, there isn't yet a marketable genlock

STAR OF THE SCREEN

With their colour screens and fast processing power, the Amiga and ST are naturals as sophisticated graphics workstations. Chris Jenkins reviews Deluxe Video 1.2 for the Amiga and investigates the world of computer animation.

system for the Atari ST, though several companies are working on it.

Of course, if you really have a penchant for expensive hardware, there's a massive range of home video equipment you can invest in. Camcorders, dubbing studios, mixers - you *could* spend a fortune.

However, you can make a start in computerised video without shelling out for extra hardware. Animations created by manipulating a series of graphic designs can form the basis of impressive video displays – if you have either the programming ability or the right software to get the results you want.

Tweeny boppers

The uses of computers in graphics and animation are many and varied. The main advantages, obviously, are that the computer can handle images in the same way that a word processor handles text; arranging, storing, editing, copying and generating graphics with any required degree of precision and complete repeatability.

Perhaps the most important computer application in animation is automatic 'tweening'. Traditional hand-animation relies on key frames drawn by senior artists. These define the major points of movement, say the lowest and highest positions of Mickey Mouse's leg. Drawing the dozens of frames in between these points – 'tweening' – is left to junior animators. In the case of computer animation, the micro becomes the junior, mathematically calculating the stages by which one image metamorphoses into another. Obviously, fast and accurate tweening routines make all the difference between a good and bad animation program.

DELUXE VIDEO 1.2

£69.95 ■ 512K Amiga, 2 drives recommended
Electronic Arts ■ 0753 49442

Electronic Arts, one of the first companies to put its weight firmly behind the Amiga, is now distributing an impressive series of graphics and animation packages as the Deluxe range. Claimed to be suitable for making everything from rock videos to business presentations, the Deluxe series integrates graphics, animation, sound and video. The packages are fully compatible with Commodore's genlock systems, using the 'colour 0' technique. But who should be interested in this sort of animated graphics package, and how much extra equipment do you need?

The real answer is (a) practically everyone, and (b) practically nothing. You may want to add captions to videos of family occasions, produce a business presentation, create your own pop vids or incorporate animated sequences into another program. In each case, Deluxe Video has something to offer.

Deluxe Video is one of the most powerful packages of its kind, and comes with four disks and a 100-page spiral-bound manual. It's designed to help you integrate pictures, objects, text and sounds into film-like audio-visual presentations. It allows you to use images from Deluxe Paint or Deluxe Print, and sounds from Instant Music or Deluxe Music. Indeed, any standard IFF images and sounds should be useable.

Intensive care

Deluxe Video is very disk-intensive, so a two-drive system is recommended unless you enjoy spending a great deal of time swapping disks.

The main workscreen is the Video Script display, from where you can zoom into sub-sections to perform microscopic edits. Pull-down menus appear as at the top of the screen. The Video Script screen is a sort of 'spreadsheet', showing the entire video in terms of tracks and events. Scroll bars allow you to move around the script, and at the top appears a timing display in seconds and sixtieths of a second ('jiffies'). At the left hand side is a capacity gauge which tells you how much memory space you have left to work with.

■ *Mike Posehn and Tom Casey (Mike has the beard), both ex Berkeley men with brains the size of several planets, put Deluxe Video together.*

FIRST CATCH YOUR PICTURE

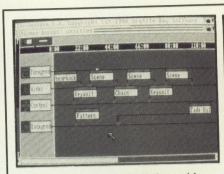
The simplest way to combine real and computerised images is with a video digitiser. This takes 'snapshots' of the analogue picture signals from videotape or a camera, and breaks them down into a digital form which can be saved as a standard graphics file, and manipulated using graphics package effects.

The Amiga is particularly well catered for in this area: examples of video image digitisers include DigiView, which works in any of the Amiga's resolution modes; Perfect Vision, which offers sixteen grey scales or 4096 colours; and VDAmiga, which digitises in real-time rather than in separate snapshots (but which costs £800).

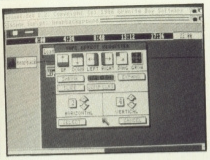
However, a more satisfying application is the combination of real and computerised images in the same picture. In fact the Amiga is already regularly used for this purpose in the production of the Channel 4 Chart Show series. Watch towards the end of the pop videos and you'll see typical Amiga icons and text boxes appearing over the video images.

SWEET SMUSIC

One of the best things about the Amiga is its standard file format. Rather than each company to devising its own way of storing data on disc, Amiga developers have standardised on the 'IFF' file format. This 'Interchange File Format' is a set way of representing graphics and music, and Deluxe Video conforms to this. As well as reading in standard IFF graphics files for the animation, Deluxe Video reads in SMUS music files. SMUS (for 'Simple MUSic') is an IFF filetype specifically for music, and most digitisers and audio packages will save data in this way.



■ *Setting up a script in Deluxe video. You can request the animation to pause and wait for keypresses.*



■ *This menu controls how you fade from one scene to the next. You can 'wipe' a bar up, down, left, right, diagonally or radially.*

Videos consist of up to five tracks, of four different kinds; foreground, background, control and music. Each has its own type of 'effects', giving a total of twenty-seven. You can create new track and effects box by dragging blank boxes from the top of the script page, and arranging them on the time-lines on the 'page'. Placing an effects box on a track line calls up an Effect Request box, where you can click on the type of effect you wish to insert. Any effect can be spread over any assigned time duration, so something like a fade can be as fast or slow as you require.

There are six types of 'wipes' available, by which one background moves over another. Wipes can move up, down, left, right, diagonally, or from the centre outwards. You can also specify the rate at which the colour palette of the old background fades to the new one, and the number of stages into which the wipe is divided. Foregrounds are made up of Objects, which can be taken from memory or from disk (it can read brushes stored by Deluxe Paint). You can preview an object by clicking on the TV icon in the request box, then place it anywhere on the background. Deluxe Video can only display seven colours in the foreground, so bear in mind the limitation when you're planning your video. If you want several different foreground objects, they must of course use the same colour palette.

Moving scenes

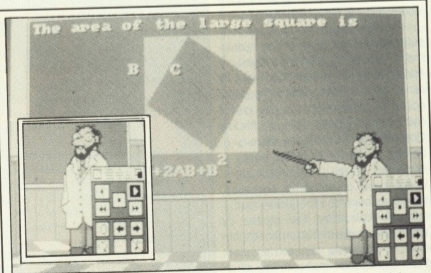
The 'Size' effect allows you to change the width or height of an object over the course of a specified time. In this way you can either create stretching effects, or the impression of an object moving towards you or away from you (in or out of the screen). A good example is the space shuttle sequence shown. Objects can be animated using the requester box AnimSeqn (no, you don't have to try to pronounce it). Each 'cel' of the image you wish to animate is assigned a letter. Up to forty letters can be chained together, each representing a display time of one-sixth of a second. Thus, the sequence 'aabbcd' would display cel one for two-sixths of a second, cel two for the same duration, then cels three and four for one-sixth of a second each.

You can synchronise music with your video, and for the soundtrack Deluxe Video can read any IFF file in SMUS format. You can preview music by clicking on the speaker icon in the request box, and you can choose which of the four tracks in each tune is played. Sound effects are added to videos in a similar way, and there are additional options such as volume changes.

The letter of the law

Text Requesters allow you to enter lettering using the standard Amiga fonts, or new ones stored on your work disks. Shadowing, underlining, and bold or italic effects can be added to your text, and there are various colour reverse, transparent and outline options which can be combined to create unusual results. Once you have written and positioned your text, additional options include movement, appearing and disappearing, and 'stamping', where the text or object, having finished moving, can be made part of the background, thus saving memory space. An alternative option, Polygon Text, allows you to define lettering not from two-dimensional fonts but from three- dimensional shapes. You can use preset polygons such as squares, triangles, stars, hexagons and diamonds, your own polygonal shapes and preset fill patterns.

The useful thing about polygonal text is that it lends itself to various impressive animation effects. You can, for instance, rotate around the X, Y or Z axes; expand, flip, or shrink the text, and move it around the screen at the same time. An impressive demo on the Deluxe disk uses polygonal shapes to create animated exploding pie and bar charts.



■ *Even education gets a look in. This is part of a riveting animated tutorial on Pythagorean geometry.*

WHAT THE EYE DON'T SEE

So how does animation actually work? The effects depend on the computer fooling the eye into believing that it sees moving objects, rather than a series of still objects each in a different position. An effect known as 'persistence of vision', which is caused by the opto-chemical nature of the function of the retina, causes the series of images to 'blur' into an apparently moving object.

The secret is to show as many 'frames' as possible while keeping up the speed of the apparent movement. Conventional cinema projectors show 24 frames per second, although each frame is shown twice so you only see 12 different pictures a second. Television too works by persistence of vision, showing 25 frames per second. The software packages we're looking at can operate at around 60 fps, so the potential for convincing animation is there.

OTHER AMIGA VIDEO OPTIONS

DELUXE PRODUCTIONS
£139.95 ■ 1 MB Amiga ■ 2 drives recommended
Electronic Arts ■ 0753 49442

The newer software package Deluxe Productions is similar to Deluxe Video in may ways, but works only on one-meg systems. It boasts more colours that Deluxe Video's eight, and uses the Amiga's highest graphics resolution mode (while Deluxe Video uses the lowest) and has a wider selection of wipe and text effects. It is more geared than Deluxe Video is towards genlock users mixing computer graphics with video images from tape – titling, mosaics and so on.

While the Electronic Arts Deluxe Video packages are impressive, they are certainly not the only options for Amiga owners. Aegis' Videoscape 3-D, for instance, is a very powerful 3-dimensional modelling and animation program which uses basic shapes to create complex images. Details such as variable surface reflectivity, light sources and surface detailing allow you to create very realistic images. Motion, rotation, zoom and transformation options let you create animation effects with none of the traditional cel-by-cel techniques.

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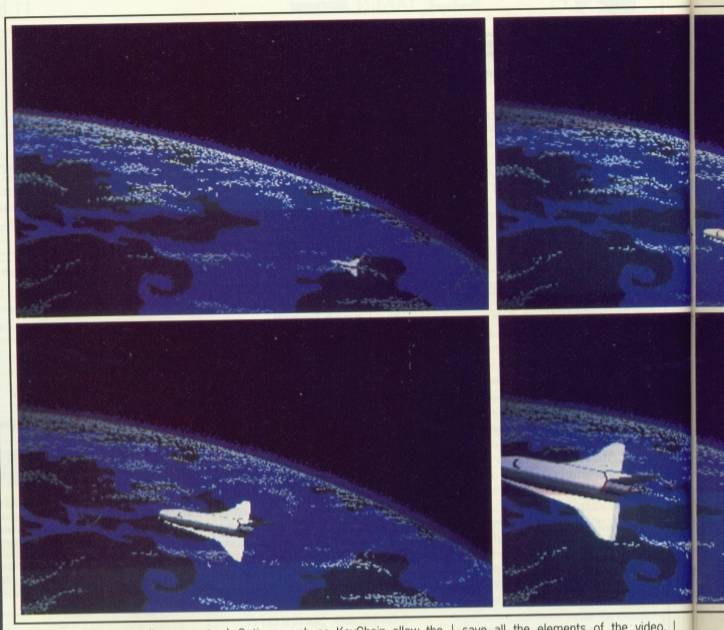
PIECE OF STRING

How long an animation can you store on a disk? How many angels can fit on the head of a pin? If your animations are very simple – maybe a fixed background and a foreground image scrolling slowly across it – then by taking advantage of the data compression techniques provided with Deluxe Video you can probably store 5 or 10 minutes of action on a single disk. With many frames of rapid and different action, you might only get 1 minute to a disk.



The Control track allows you to interrupt or manipulate the video while it's playing. Using the Chain function you can link together a number of videos, so you are never really limited by the capacity of the program. Options such as KeyChain allow the viewer to select which video is shown next, using text entry, while KeyWait simply pauses the video until any key is pressed. The menus at the top of the video script display allow you to save all the elements of the video, and to modify them by cutting and pasting elements. When you are playing through your video (either scene by scene or all the way through), clicking on the right-hand mouse button brings up a control display at the bottom of the screen. This looks like the hand unit of a remote-control video recorder, and in fact has many of the same functions. You can play, fast forward, rewind, pause or stop the video; mute the sound, loop the video and so on. A time counter ticks off the seconds and sixtieths.

Action replay

The 'Player' disk included in the package is, as its name implies, a play-only utility which can be copied to your data disks, so that you can show examples of your finished work to Amiga owners who do not have Deluxe Video.

Included on a third disk is The Framer, an animation program which offers more facilities than the limited routine in the main program. It allows you to use up to 99 frames, and call them into a Deluxe Video sequence using an 'Appear' effect. Also included on the third disk are VidCheck, which compresses your videos so they take up less disk space; and UnPack, which allows you to pinch bits from

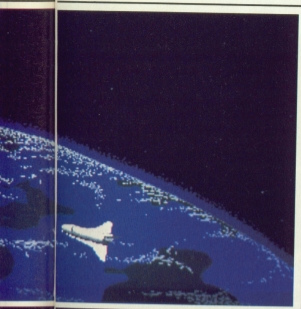
FROM THEN TO NOW

Although the computer dimension has injected a new energy, methods of animation are nothing new. The techniques of fooling the eye into seeing motion were first demonstrated in the 19th Century with 'magic lantern' displays. Emile Reynaud's famous cantering horse sequence (1877) is a prime example.

On the film side, cartoons like Mutt and Jeff emerged in 1910s and 20s. Walt disney was the man who set the scene alight with Steamboat Willie (1928), the first cartoon with sound, and Mickey Mouse's debut. The classic cartoon film of all time is, of course, Snow White. Released in 1937 it's now a staggering 50 years old and undergoing yet another re-release! Snow White has 477,000 frames of hand drawn stills. It took 2 years to produce, and almost bankrupted Disney.

Slowly, computers crept into the business of special effects and animation. Disney's Tron (1982) is a prime example of this. The backgrounds for the entire film were computer generated and the actors heads and body movements 'matted in' (superimposed). Unfortunately directors often get carried away with technology, and with Tron in particular it was a case on "Nice effects, shame about the plot." The Last Starfighter (1984) was much-hyped as the first film to have a lengthy sequence of pure computer-generated animation – about two minutes of spectacular graphics. Again, the rest of the film disappointed.

George Lucas – famous as director of the Star Wars movies – set up his Industrial Light and Magic studio to generate special effects on contract for film producers. They use computers very heavily, but ST and Amiga 600 by 400 pixel resolution isn't quite good enough! To get true 35mm quality effects they use Cray supercomputers at $10-plus million apiece. Each frame of a sequence (remember there are 12 different frames a second) can take up to an hour to generate, so we're talking lots of money. Using computers isn't cheaper than hand animation, just slicker.



■ *The space shuttle (before it blew up). Deluxe Video can change the magnification of a sprite from frame to frame as well as just moving it, so giving the effect of moving*

THE VIDEO SCENE AT LARGE

Considering that a convincing animation will contain at least twenty-four frames per second, it's not surprising that even a Mega ST or expanded Amiga soon becomes insufficient to create lengthy animations. The solution in most cases is to transfer your work to videotape, and in any case one of the most exciting features of computer animation is the possibility of combining video and computer images. Even if you are using domestic video recorders on the VHS or Beta standard, rather than professional U-Matic machines, there are many add-ons available which can be used in conjunction with your computer to create impressive videos.

The first necessity is a good video recorder with clean 'assemble edit' functions, and preferably a separate audio dubbing facility. The most useful add-on is a video mixer, such as the Sansui VX22. At around £470, this can combine signals from audio sources, video tape and a video camera, and create effects such as fades, wipes and colour distortions.

Another useful extra is a simple mono video camera at around £100. This can be used with an image digitiser, and by adding a series of coloured filters over the lens you can add false colours to the image. Alternatively, the world's cheapest camera/recorder (camcorder) is forthcoming from Amstrad. This uses the VHS-C system and will cost around £499. For around £100 you can obtain picture enhancers from Vivanco and JVC. These will clean up your video signal as you copy from one tape to another, and can also be used to create unusual colour effects.

A forthcoming video mixer from Panasonic will offer the first affordable a 'time base correction' facility, allowing you to lock together two signals from separate video tape sources. In conjunction with a genlocked computer, the possibilities will be mind-boggling. At the moment, it looks as if music is the biggest growth area among computer users. As video equipment falls in price, and innovations such as satellite and cable TV expand our awareness of the capabilities of video, it may well be that computer/video graphics systems will be the next big thing in the home computer field.

other videos and use them in your own.

Overall, Deluxe Video is a very impressive animation cum home video editing package at a keen price. A couple of drawbacks are that you can only use 8 colours on screen at once, which is annoying given the Amiga's capabilities, and there is no pixel editing ability at all. You can't retouch pictures in Deluxe Video itself – you need a dedicated art package to prepare things with. More advanced users might prefer to go for the costlier Deluxe Productions.

What can the ST do?

The alternatives for ST users boil down to two main contenders; Mirrorsoft's Film Director, and Aegis' Animator.

Film Director works with picture files from Art Director, Degas or Neochrome, which provide the background scenes and foreground sprites. You can also create polygonal shapes at any start and end point, and set the tweening process to create up to 99 intermediate steps. Film Director's major drawback is that it lacks rotate functions for objects. If you wish to show, say, a spinning ball, you must create sprites for each required orientation separately, then tie them together in an animation using the Group Editor functions. Up to two thousand frames of animation can be created using the Frame and Sequence Editor facilities to place elements on the backgrounds and move them through time. Object priorities can be defined and sound effects added at this stage too. Oddly enough you can't create your own music.

There are no facilities of the fade-and-wipe kind found in Deluxe Video on the Amiga, though another ST program, in some ways more impressive than Film Director, fits the bill better.

This is none other than Aegis Animator. It uses both polygonal and sprite-based animation techniques, again using files created with either Degas or Neochrome. You can build up a library of polygons, apply moves, X/Y/Z rotations, zooms and colour changes, and have the program calculate the tweening stages. Polygonal and object animations can be combined in films of up to 9999 frames, and timed to within 1/60 of a second. You can edit up to six 'storyboards' simultaneously, with miniature versions of the complete animation running in separate windows. You can cut and paste from one storyboard to another, and use colour cycling and palette change techniques to create fades and cuts. However, it has nothing of the complexity of Deluxe Video's wipes or abilities to interface with external video equipment. ■

■

UNNATURAL ADDITIVES

The eye sees colours in funny ways. At school you were probably taught that the primary colours are red, yellow and blue. Yellow and blue make green, and that sort of thing. Well, that's true as long as you are talking about mixing phosphors with *emitted* light, like from a TV or monitor screen. With *reflected* light, such as you see when you mix inks as on this page of the magazine, the primary colours are magenta, cyan and yellow.

■

■ *Aegis Animator on the ST. This can construct good animations on disk, but unlike the Amiga no ST system yet can link to a video recorder for adding titles to home videos.*

Deluxe Video 1.2

for

- **Synchronises music with images**
- **Many types of fade and wipe**
- **Images can be resized to imitate distance effects**
- **Text can be rotated and superimposed**

against

- **Only 8 colours at once**
- **No pixel editing facilities for touching up**

features 0 1 2 3 4 5

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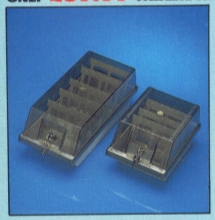

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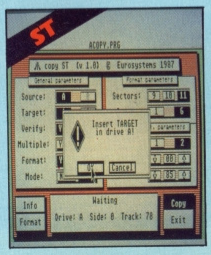

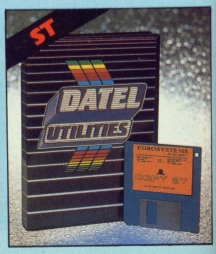

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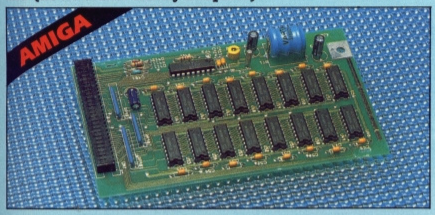

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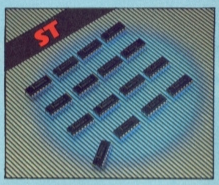

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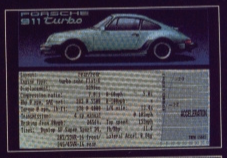

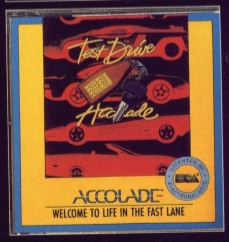

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SCREENPLAY

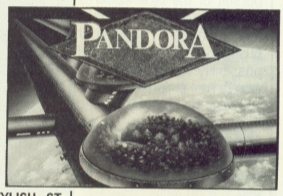
Games, games, games... Summer it may be, but lazy it's not. Andy Storer sorts out the men from the goats and reviews the finest.

In the last month, ST Amiga Format has received 20 new games, most of which are due for release on both machines. This is a healthy state of affairs even in Summer, a traditionally slack time. However, only a quarter were originated on 16-bit machines, the remainder being ported over from 8 bits and improved to differing extents. Some were embarrassingly poor; little more than **CHEAP CLONES,** others **PURE JOY;** injected with **FRESH** speed, colour and sound. After all, if you're paying **DOUBLE** the price for a conversion why shouldn't you get **TWICE** as much **VALUE** for your money? While software houses think up an answer we'll just review those titles that show **STYLE, DEPTH** and **IMPACT.**

GAMES INDEX

FORMAT GOLD

REVIEWED



Format Gold

So what makes our coveted **FORMAT GOLD** grade this month? First off is Infogrames' **CAPTAIN BLOOD,** possibly the **MOST STYLISH ST** release ever and now about to make its debut on the Amiga. The first reviews of **BLOOD** were based on a sparse French version. This has subsequently been beefed up in translation to English and promises to be enhanced even further for the Amiga.

Our other killer is **CORRUPTION**, the latest outing from Magnetic Scrolls. **INTERACTIVE FICTION** has come a long way since the first **VERB-NOUN** input **CRAWLED** through the innards of a BBC, and in **CORRUPTION** you have a State of the Art parser to guide you through the **UNDERWORLDS OF FINANCE.** That and a few filofax pages.

Preaching to the converted

Next on the list are two releases for the Amiga which really show up what a conversion **SHOULD** be about.

JINKS is no original concept – just an **IMMACULATE CONCEPTION**. Although no more than a **NEW-WAVE BREAKOUT CLONE** it has a **MASS of CLASS** just waiting to fill your screen. In a **FUTURE OF INFINITE MEMORY** it's the sort of game that'll be available as a desktop accessory – any excuse for a break and you'll be in there. It also wins our vote for **BEST JAZZ-FUNK INTRO OF ALL TIME.**

The Amiga's other rave release is **SENTINEL;** another beaut from Telecom – how much money DO these guys have?. That's the fifth title we've received from them in a month!. There wasn't ever a bad review of the 8-bit versions of **SENTINEL;** so there's no wonder this version is just as compelling and more. What you might call an **ABSORBING** game.

A WORD ON ADVENTURE RATINGS

Regular readers (c'mon, it's issue 2. You're all regular readers by now!) know we rate games on the categories of Still Graphics, Moving Graphics, Soundtrack, Lasting Appeal and Value. Okay, how many adventures do you know of that have moving graphics and sound? Not a lot. To be exact – none. So we've had to adopt a different rating system using other categories. And here they are :-

SCENARIO

The strength of the storyline – the atmosphere created by the game, how well the locations, characters and objects are brought to life. Will you be wandering around a wasteland or is there a whole world of wonder awaiting you?

INTERFACE

How easy and effective is communication with the game? If it's a text parser, will you be dealing with a dumbo or chatting with a chum? If the adventure is icon or menu driven, how well do these accomodate the range of inputs you may wish to enter?

INVOLVEMENT

It doesn't matter how well the storyline is described or how clever the interface is if you don't feel involved. Are you the central character or a general bystander? Or is the gameplay so mind-numbingly difficult you don't get a chance to find out?

LASTING INTEREST

Will you be musing for months or yawning for years? Is the adventure's difficulty compelling enough to want to make you complete it or will you just end up puzzled as to why you bought it?

OVERALL

The acid test. Does the game catch on or merely cash in?

Everyone ready then?

Turn the page, let the adventure begin...

CAPTAIN BLOOD

FORMAT GOLD

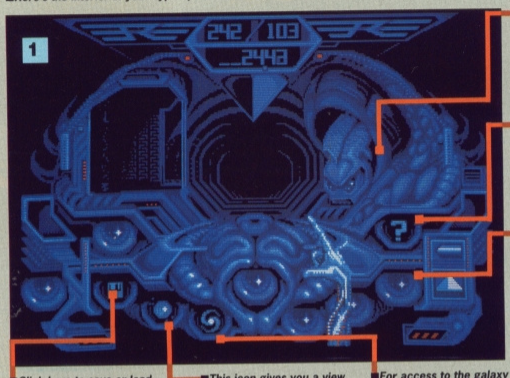
INFOGRAMES

ST – £24.95, Mouse, Enhanced version just out.

Amiga – £24.95, Mouse. Due any day now

After a reincarnated Charles Darwin tells you that Pac-Men are reproducing in millions all over the galaxy, you too might conclude something's got to be done. Whether you'd write a program to create a bio-tech hyperspace vehicle the size of an asteroid and flip over to Andromeda in pursuit of the little spheres is another question entirely. As such an endeavour pushes the boundaries of possibility to the max, you won't be surprised when you're subsequently cloned thirty times in the process and meet a species of bio-missile with more than a passing resemblance to fish.

Who *are* these guys from Infogrames?



Here's the interior of your hyperspace vehicle

GAMEPLAY

It's 800 years later and in order to maintain your vital life fluids you're tracking down your last five clones hidden across the galaxy. As there are over 32000 planets, you'll be happy to know that your task is eased by the information provided by alien life forms in exchange for satisfying their requirements – which range from destroying worlds to finding them sexual partners. Travel and trading are the underlying themes in an adventure which enables you to converse with 13 different species of alien after indulging in some of the best flying sequences ever devised.

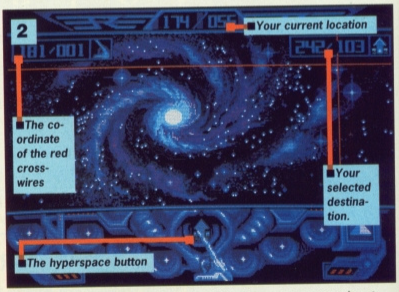
The game's structure is straightforward, all operations are mouse and icon controlled. You have a galaxy map and cross-hairs with which to pinpoint a destination, you hyperspace to the selected location and then dispatch a controllable surveillance missile to the planet's surface in order to meet the inhabitant. Using the system of icons, you communicate your wish to find your clones and negotiate a deal – which is often one-sided.

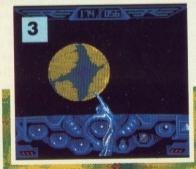
It is advisable to check each planet's surface for defence systems before going down. All worlds require low-level flight over mountains, valleys and forests. You have to locate a canyon at the end of which should be your alien.

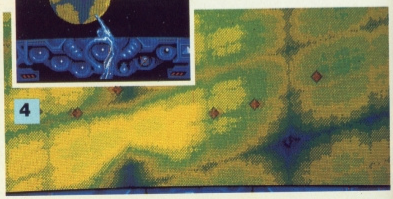
Although there are 120 icons from which to construct questions and responses, stringing them together in an order the creatures can understand can be quite time consuming. Similarly, your hosts' pronouncements are not always crystal clear. Your approach has to differ according to the character encountered.

Galactic life, it seems, is pretty sparsely distributed, so it's very important to have a pen and paper handy to list all those 6 figure coordinates – otherwise you'll never remember where you've been or where you're going.

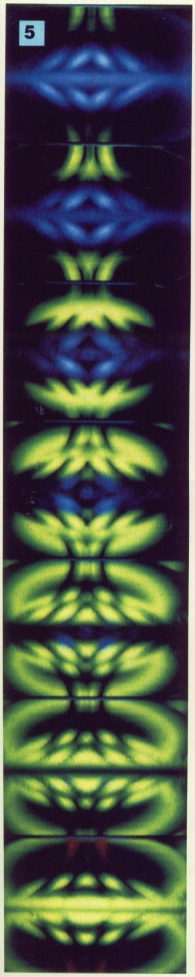
Each new game has a brand new set of inhabited planets – as you will have gathered, Captain Blood is a long, long venture.



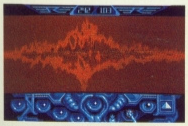




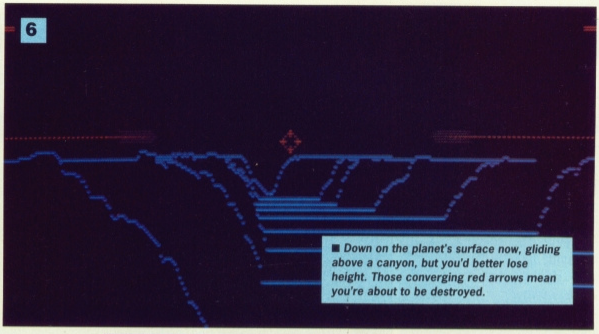
After hyperspace you arrive at your first planet.. By clicking on the geophoto icon you can scan the planet's surface for the red diamond shapes of defence radars



■ You hit the hyperspace button and watch those colours shift.

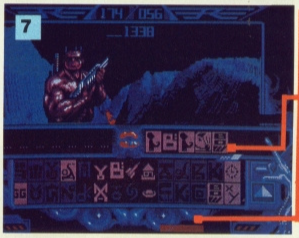


■ Nuking an entire world might look something like this...



■ Down on the planet's surface now, gliding above a canyon, but you'd better lose height. Those converging red arrows mean you're about to be destroyed.

■ Along to the end of a canyon, the wire frame contours fill and you meet Mr. Machismo. Turns out he wants you to nail his enemy. If you comply he might tell you where one of your clones are. Maybe...



■ Slide this bar along with the mouse to reveal another screen of speech icons.
■ You move them into your speech box by clicking on the appropriate picture.
■ You've just said " Me Blood Me Search Planet Bow"
■ He doesn't look too impressed!

GRAPHICS AND SOUND

Besides the main display of your bio-conscious vessel there are four other types of screen. First off is the static galaxy map; clicking on the hyperspace icon takes you into the second screen – a psychedelic trip through pluslight accelerations depicted as a sequence of colour worthy of Jeff Minter.

The planet then expands into full view. The design of each world seems to rely on Mandelbrot sets, though how they're generated so fast is an Infogrames secret; no two are the same and all have a rare beauty. If you wait long enough the planet will revolve full circle, but you can always get an enlarged view of the planet's surface too. Here the effects are simply stunning and it's worth buying the program for them alone.

The third sequence is the descent to a planet's surface. You glide into the blue wire-frame mapping of the world below, using the mouse to increase your speed as the wind rushes by. You can suspend movement at any point and a blue-white fractal fill traces its way into the distance.

After a few practice runs, entering the twisting canyons at full throttle is no problem; negotiating them when they're full of needle pinnacles is a lot harder. If the planet is protected by radar, you've got to fly beneath it – converging red arrows signify you're too high and if they meet it's curtains.

Once you reach the end of a canyon, you come to the alien. All the life forms are neatly drawn solid animations with speech – indecipherable alienese of course! Should your planet-bound conversation have gone badly, you can deliver the ultimate snub by clicking on Destruct. You then experience a world in its final throes; the sequence is similar to hyperspace but actually looks as though it was shot on movie film. Brilliant.

Sound FX include the booming digitised speech of your vessel's bio-consciousness as you select icons, the steadily deafening drone of hyperspace leaps and of course the excellent digitised loading screen sequence supplied by Jean Michel Jarre (a whole diskfull).

CONCLUSION

The difference between this new version and the original French Captain Blood of some months ago is staggering. As if the graphics on the ST were not enough, the forthcoming Amiga version promises to take them even further. The wire-frame contours will undoubtedly benefit from the Amiga's anti-aliasing capability – all those straights and curves becoming more defined and continuous. Sound effects will also improve thanks to the Amiga's twin-voice stereo output and Monsieur Jarre has reputedly returned to the studio to further enhance his contribution. To sum up – Bloody excellent.

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 91%

FORMAT GOLD

CORRUPTION

MAGNETIC SCROLLS/RAINBIRD

ST – £24.95, reviewed | **Amiga – £24.95, due out any day now**

It's an immense pleasure to come across an adventure that bears no resemblance to the mass of Tolkeinesque scenarios that abound. Just how many Orcs and Hobbits are there left alive anyway?

Magnetic Scrolls' work has always been peculiarly English – witness *Guild of Thieves* and *Jinxter* – and eccentricity is possibly the last world market in which we have a real lead. But this release does more than merely confirm their leading position as adventurers *par excellence*. Corruption marks the emergence of a form of fiction just dying to embrace a mainstream audience. If you've ever dreamed of owning a BMW that just blasts the oppostion out of sight here's your chance.

INTERFACE

Since the gameplay of any interactive adventure is determined by its parser, even the best scenarios can fall foul of inadequate systems. Fortunately, good ol' Mag Scrolls know enough about interaction to make the often tedious process of look-examine-take-enact routines interesting and absorbing. This is not to say they get *everything* right – you can ask the most logical questions and still get a dumb reply.

Many current systems seem to assume you never ask questions beginning with who, what, why, when or how, so direct questioning can be harrowing. Here this is partially overcome by the provision of two key commands – 'Ask' and 'Tell' – whereby you can enquire of or inform someone of something and receive pertinent information in return. Another useful command is 'Follow' which allows you to navigate the diversity of locations without having to enter directional inputs – it's also a valuable means of gaining access to rooms which would otherwise be denied you.

In short, it's a parser which can accomodate a diverse range of inputs, and as a consequence you don't get the feeling that you're somehow caught in an inflexible system to which you must slavishly conform. The effect is very refreshing.

■ *Theresa takes it easy – should you take her for lunch or take her keys? No wonder you can never find the boss.*

■ *Looks like you should have that turbo-charger checked... your company car gets heated up over nothing.*

GAMEPLAY

Your task as the central character in this contemporary crime thriller is to seek out the evidence required to clear yourself of implication in serious fraud. After pulling off a major share deal, you have been poached by a City firm and offered a partnership, replete with a company BMW.

However, shares is not the only form of dealing in which you're embroiled. Cocaine also happens to be one of the leading commodities of the moment and guess who's going to take the fall if there's a major crash on that market? In fact it seems you were only taken on as a fall guy.

At 9 a.m. on the first day you are shown your new office. You wander around the office chased by messages from your distinctly un-feminine secretary, and if you look as though you're busy you can drop in on your boss's secretary (who's altogether more delectable), the company lawyer, the brokers and even the cleaner for vital gossip.

There are phones, ledgers and files to be found. There's even your car to go out in. The first sign that all is not what it seems is when you overhear a conversation between your boss and the company lawyer which suggests that your successful deal was rigged. Since you must listen at a door to glean this information it soon becomes apparent that the only way to proceed is by devious methods.

Before long you have worked out a way to steal a cassette from your boss's office, which reveals a subtly doctored recording of your interview. Something is definitely amiss, and it ain't just your secretary.

So, the principal objective is to extract information and manipulate other characters in an attempt to clear yourself of impending fraud charges. Once amassed, you must get your evidence to the local police station, avoiding the menaces of drug barons, corrupt police, homicidal doctors and all manner of baddies.

The locations and characterisations are expertly described, and the sense of struggle-against-all-odds is lightened by the outrageous circumstances befalling you. If you've ever seen Scorcese's *After Hours* you'll know what's in store for you. *(Smartass – Ed)*. Let's put it this way – things do a get a little out of hand.

■ *Can you stomach this incisive sequence or are you just a drip? Either way it'll have you in stitches.*

GRAPHICS AND GOODIES

There are 28 pull down pictures which illustrate various locations in the narrative. As with all Magnetic Scrolls' recent works, the graphics are photographs copied using an art package; the result is a much higher quality than a mere digitised image. Once the pictures have conveyed the atmosphere of your surroundings you can just put them away out of sight. Since they are of such high quality it's surprising they serve no other function than dressing; they don't appear to contain clues and in fact include objects which have no presence in the accompanying text descriptions.

Above the text and graphics are the pull-down menus (perforated in true Filofax-style) controlling files, text size and descriptive detail, graphics style and 'goodies' such as printed transcripts and hints. Also up top is a clock by which you can turn up on time for appointments, and wait until a specified time before doing something.

Also included in the packaging are a number of extras. There's the cassette you steal from your boss's office, complete with dialogue and music, and Filofax pages featuring diary/address book, gambler's guide and business entertainment list. There's also a cypheric help section; you type 'Hint' at the keyboard and enter strings of encoded letters. Very useful for those hair-pulling bouts of frustration.

■ *Want a ticket for the band, mate? Could this be your salvation?*

CONCLUSION

Corruption is certainly Magnetic Scrolls' best adventure to date and more than any other, Infocom aside, serves to underline the growing sophistication of interactive fiction. There's enough here to keep you puzzled for months, so it's just as well that you can save positions and have a break.

Perhaps Corruption's most endearing quality is its capacity to manage your mistakes and oversights humourously rather than take a patronising attitude. Here's a game which will give you hours of pleasure in a way no arcade release could maintain. The keyboard is indeed mightier than the laser.

■ *You duck responsibilities and search for crumbs of evidence in the local park.*

■ *Do you have enough chips for the stake? Don't lay your cards on the table until you have more up your sleeve.*

■ *After taking the BMW for a spin you decide roulette is the best bet. There's blackjack on other tables – strictly for the Over 21s, mind you.*

■ *And now here is a Police Warning. "Look out, it's the fuzz!" The Fraud Squad wonder how you manage to come back from the dead time after time.*

scenario 0 1 2 3 4 5

interface 0 1 2 3 4 5

involvement 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 91%

STAR WARS®

Brought to you by the team who produced the top-selling STAR WARS® game, THE EMPIRE STRIKES BACK ™ is the next stage of the unfolding drama.

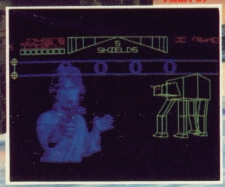
This game follows the non-stop action of the movie and is a direct conversion of the famous coin-up.

The player takes the role of Luke Skywalker, piloting a snow-speeder against the huge Imperial Walkers. Darth Vader controls his forces with deadly cunning, using his Probots to search and attack the Rebel Base.

The action continues as the player becomes Han Solo in the Millennium Falcon, looking for safety in the galaxy whilst being attacked by Tie-Fighters and dodging asteroid storms.

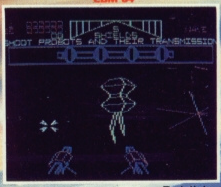
May the Force be with you – Always!

Atari ST



Spectrum

CBM 64



Programmed by VEKTOR GRAFIX

Published by DOMARK
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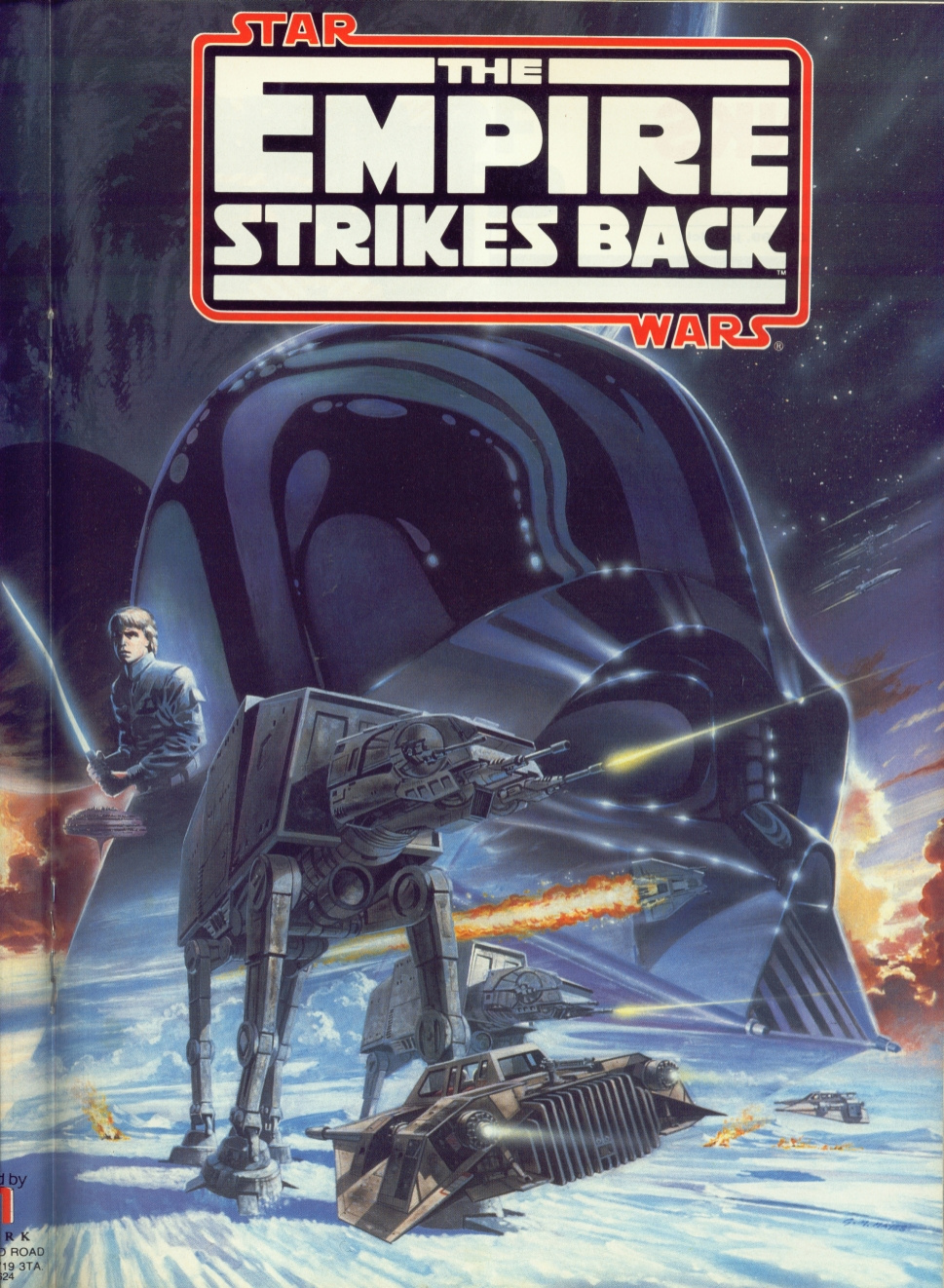
LONDON SW19 3T

STAR WARS THE EMPIRE STRIKES BACK



JINKS

GO!/RAINBOW ARTS

Amiga – £24.99, joystick.

ST – No release planned

When Breakout broke out way back in '73, you probably never thought you'd be playing variations on TV ping pong for ever. Thankfully, fifteen years later, we're enjoying versions that possess only a passing resemblance to the original. Jinks has taken the concept to new levels of sophistication using the Amiga's graphics and sound capabilities imaginatively and humourously. As clones go this is up there with the likes of Arkanoid, though it's in the sound department that it rides the leading edge.

■ *Can you Jinks it among the debris left by Apollo 11 ?*

GAMEPLAY

Simplicity all too often becomes complexity in Jinks. You control a triangular bat with which you hit a ball, and (surprise!) your object is to clear the level of blocks, thereby gaining points. Each level spreads over three or four screen widths, and the Amiga scrolls with effortless ease over the whole width as you go. You've got to escape to new levels by knocking the ball into a goal mouth at the far right end of the current level.

All very straightforward but not that simple. Things begin to get a little out of hand as you come across all manner of diverse objects. These include hazards such as magnets, Atari signs (a nice bit of internecine warfare) and fish heads, which halve the size of your triangle if you touch them, making control that much more difficult. Luckily you can return the bat to normal size by pushing the ball through red cross symbols. Other objects merely serve to randomise the flow of the ball by acting as rebound devices, whilst smiling pairs of chattering teeth will bring your game to an end if they can swallow the ball. All very bizarre.

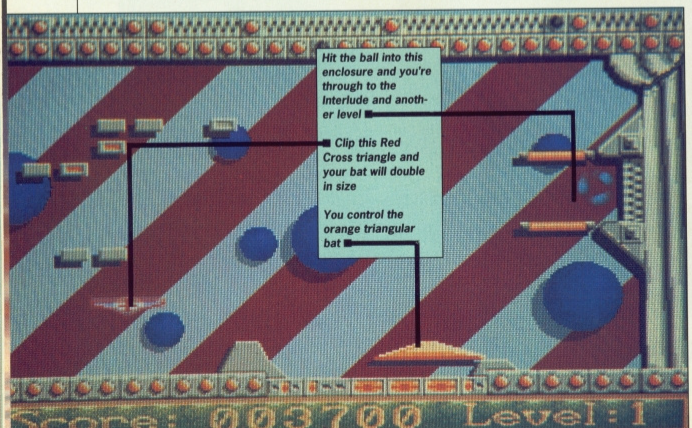
When you complete a level, a single-screen interlude appears where you must knock the ball into one of four areas in order to proceed. There are only four levels, but as you progress their level of difficulty correspondingly increases. As of course does your frustration; getting the ball to go exactly where you want it to go is very, very difficult.

GRAPHICS AND SOUND

There is no doubt about it, Jinks looks stunning. All animated movement is extremely smooth – loose screws, paper clips, revolving earths and flying pigs spin and turn with ease against solid slow-scrolling backgrounds of moon craters and Amiga mice. The foreground action is fast; a ball-smashed screen right disappears off screen leaving you to catch it. Sometimes all you catch is a glimpse as it bounces back in the opposite direction. Fortunately you can keep track of its progress from the digitised sounds produced as it collides with squeaking teddy bears, grunting pigs, and burping mouths. But when it comes to sound, best of all is the start up screen with its cool jazz-funk sample.

CONCLUSION

Jinks is best described as a hybrid rather than a clone. It effectively combines Breakout and Pinball in a surreal mix of ingenious humour. The result is a gameplay comprising sufficient randomness to ensure you're back to that jazz-funk intro day after day. If there's any criticism it has to be the wait-states endured between level loadings but then the graphics and sound admirably compensate for this. All in all, Jinks is a game which goes to prove that the Amiga can turn lightweight concepts into heavyweight productions. A real beauty!



■ *Waiting in the goal mouth zone for the long lost ball to reappear. Watch it doesn't hit those orange blocks beneath you or it'll disappear through them and leave you back at square one again.*

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 78%

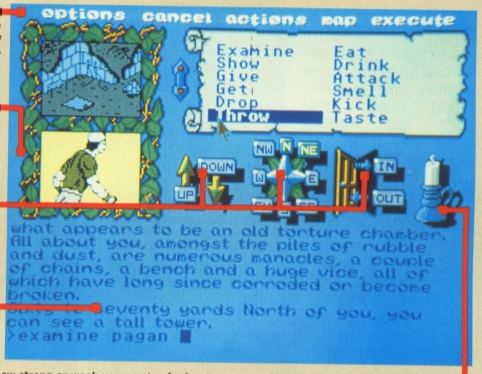
LEGEND OF THE SWORD

RAINBIRD

ST – £24.95 | **Amiga – £24.95**

The evil wizard Suzar has launched an attack on the land of Anar with his hideous humanoid army' – so runs the storyline to Rainbird's latest graphics adventure. It continues 'The valiant forces of Anar did their best to hold off the armies of Suzar, but they stood no chance. Every time a man of Anar was slain he was brought back to life by Suzar and attacked his former comrades. You were one of the lucky ones that managed to escape the carnage and flee Anar.

You are summoned to the High Council of Anar where you learn from King Darius of a legendary sword and shield that were once guarded by the Corsarians. Both of these artifacts must be found if Suzar is to be slain. Speed and secrecy are of the utmost importance, so you and five other brave individuals set sail for Anar to find the sword and shield'.



■ Across the top of the screen are menu items which can be clicked to reveal the more common commands

The location window shows a small picture of your current whereabouts.

This window updates your current actions and moments of combat.

Movement icons can be used for rapid movement from one location to another.

Text input and output appears at the bottom of the screen.

The candle shows how strong or weak your party of adventurers are, the lower it goes, the closer you are to death.

GRAPHICS

Most adventure graphics are static but Legend of the Sword has something different, a scrolling map that gets gradually filled in as you explore the land. Normally it's only a small section of the screen, but you can expand it to full screen if you want to get your bearings. The small location and action pictures are not very detailed due to their size, but you can clearly see what everything is supposed to be. The overall screen presentation is very good and if you don't like the background colours they can be changed to suit your taste. As with nearly every adventure the only sound you get is from the keyboard.

INTERFACE

Although this is basically an adventure, it has an unusual method of command entry. Many of the common commands can be summoned with a mouse click. The eight compass directions, up, down, in and out can be clicked directly and many other commands can be accessed through menus. Your current location and last action are displayed graphically in two windows on the screen. A third window shows the menus or map depending on what you're doing at the time.

You can't use the mouse exclusively in solving the adventure, but you can zoom around and interact with many of the objects using it. When you come to type in commands from the keyboard, you'll find the interpreter flexible and quite sophisticated, although you can still use verb/noun commands if you want to. 'Find' and 'goto' are two of the more advanced commands that allow you to move straight to a particular location or object. The oops option is included to help you rectify unfortunate (and usually painful) mistakes by taking back your last command.

CONCLUSION

Evil wizards have been persecuted by brave warriors every since the dawn of computer adventures and Legend of the Sword is not about to buck the trend. The thing that does set it apart from the rest of the pack, though, is the presentation. The on-screen map, the use of mouse and menus for the more mundane actions is good and speeds play. Unfortunately some of that speed is lost with the regular disk accessing.

Gary Barrett

■ Clicking on the map window switches to a full-screen map of the area that you're in.

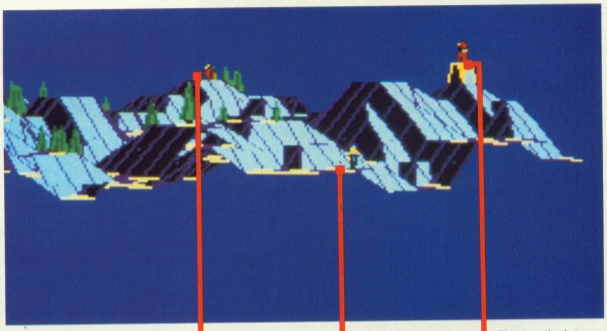
scenario	0 1 2 3 4 5
interface	0 1 2 3 4 5
involvement	0 1 2 3 4 5
lasting interest	0 1 2 3 4 5
overall 88%	

THE SENTINEL

FIREBIRD

Amiga – £19.95 keys,mouse | **ST – £19.95 keys,mouse**

Even in its 8-bit incarnation, Geoff Crammond's avant-garde strategy game was a rare example of strategic gameplay on a par with chess. Here was a game which could take literally years to complete. With the release of 16-bit Sentinel, originality is now a rarity everyone can afford. You are a lone synthoid doing battle against an all-seeing Sentinel and its minions, the Sentries. Pure energy is the medium of progress in a series of tactical decisions where you must gain sufficient height to be able to absorb your enemies.



■ *Hitting the space bar in different locations gives you some very impressive external shots*

■ *A sentry covers a possible route to higher ground.*

■ *There you are in the foreground with quite a bit of climbing to do*

■ *The sentinel turns your way*

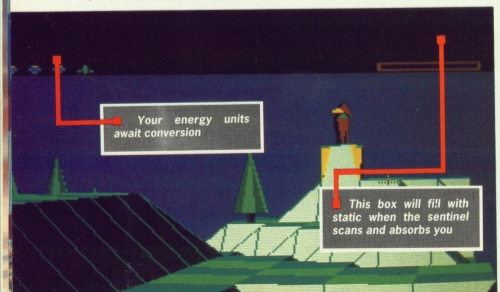
GAMEPLAY

You can only absorb an object's energy if you can see the square on which it stands and as such the trick is to gain height and thus a greater vantage point. You eventually work your way up and around the landscape until you are in a position to absorb the Sentinel itself and proceed to another world.

This would all be a lot easier if the Sentinel and Sentries were passive, which of course they're not. Once you start absorbing energy, they start turning and once facing in your direction will begin to absorb *you*. As you can't always see them, you can only tell when your precious energy starts to disappear by watching the small box in the top right corner of the screen. When this begins to fill with static you know you had better move quick or you'll end up as sub-atomic debris. One way of avoiding the Sentinel's scan is to hide behind parts of the landscape or trees; if it can't see you it will just keep turning. If it can see you but can't see the square on which you're placed the Sentinel creates a Meanie, a Sentry that tries to force you into hyperspace.

Once you have gained enough height to see the square on which the Sentinel is standing you can absorb it and claim its energy, so allowing access to a new world and a fresh challenge.

■ *Your synthoid eyes view the Sentinel's killer stare*



GRAPHICS AND SOUND

Each landscape is a contoured series of solid plateaux, ledges and dips. From above, the beauty of each design is more apparent; the seemingly random configurations provide one of the great sights of contemporary games software. Energy transfers are conveyed by a smooth break up of the object. The only real criticism is that the cursor speed is only marginally faster than on the earlier 8-bit versions despite being reworked by Steve Bak.

The immediate surroundings scroll slowly – almost too slowly – but a greater scrolling speed would make the game too easy unless the number of Sentinels and Sentries per level were increased. As such, the result is a trade off.

The Amiga version scores over the ST with the addition of David Whittaker's stereo sound effects and musical accompaniments to your activities. These work well in enhancing the alien atmosphere of the game and add to the tension when you're under the Sentinel's terminal gaze.

CONCLUSION

We're talking as near to the infinite as you'll probably care to consider – by the time you've completed its 10,000 levels of tactical planning one thing's for sure – you'll know the meaning of the word Absorbing. Because your rate of success determines the number of your next world, the pathways to increasing difficulty are many and varied. If you can complete level 36 please write and tell us how! We've heard that landscape 6734 is a bit of a bind too. Like chess, you could be playing this game for ever. It's an instant classic.

still graphics 0 1 2 3 4 5

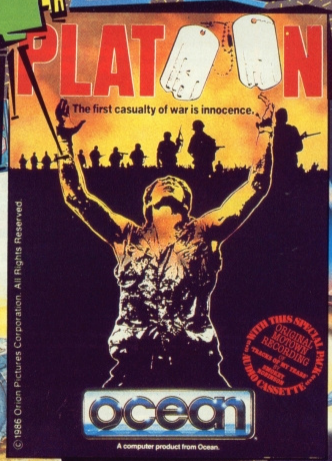
moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 82%

SUPER ACTION FOR YOUR ATARI ST



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PANDORA

FIREBIRD

ST – £19.95 joystick

Amiga – £19.95 joystick

Or, once you've opened the box, dare you open ***the*** box? Pandora is a seventh generation computer guiding a spaceship of the same name in a search for alien life. Pandora evidently found it, since it's now out of control. You're an obliging Intergalactic Salvage Operator who's contracted to investigate and disable it – funny how the best job opportunities fall your way eh? But it's not just a question of delivering dead junk back to Earth, for this ship is alive and fully intends to return to Earth on its own accord. The fact that it may come and greet us at terminal velocity hasn't entered into its head. So you don't have a lot of choice really. You have to disable her or die in the process.

GAMEPLAY

You guide your character around the ship's interior in a search for the access codes and keys to shut down the drives. Your route to this goal requires a certain amount of 'trading' with other characters on board. Although most of the useful personnel are dead, the place is crawling with weirdos of all kinds – mutant punks, combat droids, automatic cleaning drones, the alien from Dark Star and various other driftwood from popular sci-fi. The choice is whether to enter into a punch up with these lost souls or trade objects. The more fights you get into, the lower your health status; once you become Dire you may as well give up.

Getting the hang of this usually involves beating up a roaming hooligan several times for practice until you can collect weapons and take on some of the more heavily defended characters on board. You find weapons and most other objects scattered around the ship in empty quarters and work stations – some protected by force-fields and security locks.

As with many other arcade adventures, it can take quite a while to work out which are the best objects to hang on to. If a character wishes to trade he usually tells you so – displayed by scrolling text across a message window – otherwise you take what you want by beating the guy to death. No wonder Pandora went haywire.

GRAPHICS AND SOUND

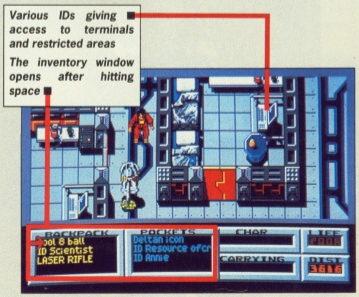
Pandora's graphics transform average gameplay into an enjoyable visual treat. Movement of the many characters is smooth and solid while the colourful backgrounds are in no way repetitive. ST users are given the option to adjust the distance that the screen scrolls when the character moves towards the screen boundary. The default setting is usually more than adequate, but if you want to see what's coming up around that corner, press [+] to display a wider screen transition.

Fights are depicted as clouds of arms and fists punctuated with Batman-like Kapows and Crunches. This would be great fun to watch save for the fact that you have to keep your eyes firmly planted on a 'punch-strength' box and hit fire when the strength of your assault can be seen to be at maximum. Sound is confined to spot effects only, mainly in the fight sequences.

■ *The punch-strength window*

It's looking dire and your opponent's winning hands down ■

■ *The science officer takes a rest while you punch up a punk*



Various IDs giving access to terminals and restricted areas ■

The inventory window opens after hitting space ■

■ *You dodge the cleaning drone and pause to take stock*

CONCLUSION

Thankfully, completing the game requires more than violence. You have to locate and interrogate computer terminals after first securing the correct access codes, and map out the route to the heart of the ship in order to shut down the drives before it hits Earthspace. In the meantime you can increase your score by finding and dumping alien artifacts down a shuttle chute. But there are times when you'll feel like taking that chute yourself since there's no means of saving your current position. An unfortunate oversight in an otherwise extremely playable game.

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 63%

RETURN TO GENESIS

FIREBIRD

ST – £19.95 Keys, Mouse, Joystick

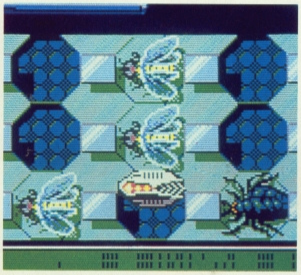
Amiga – £19.95 Mouse, Joystick

From the author of Goldrunner and Karate Kid II we bring you... a terminal visual assault!. Genesis is to Defender what Jinks is to Breakout; namely a sophisticated horizontal scroller that shifts like there's no tomorrow. The game has moved firmly away from wire frame animations and is blessed with solid fills. What's more, 16 bit power is moving those fills at the kind of speeds you'll one day end up buying yourself a pair of Porsche eyeballs to follow. In the meantime, have a bottle of Optrex handy.

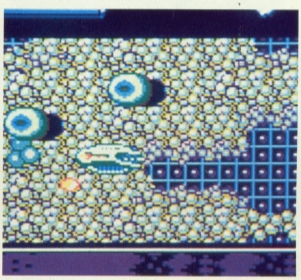
It's 6600 A.D. and 12 scientists await transportation along with fifty of their clones in the ten worlds of the Zephyr region. The aim is to fly a high speed assault craft over, under and through richly textured landscapes populated with legions of hostile aliens. You must collect as many scientists as possible before moving on to the next world, and all along the way you have to enter into delicate negotiations with alien pursuit vehicles, i.e. blast them beyond recognition before they do the same to you.

Scientists are collected by running right through them – a method of contact they don't seem to mind since they're still prepared to provide you with additional resources once they're on board. Between levels you may choose from the group you have rescued to acquire the technology to activate extra lasers, collision free movement, and higher speeds.

Colour has been used to great effect to enhance the speed and difficulty of the action; the backgrounds are beautifully designed, comprising a rich variety of motifs – butterflies, beetles, brains and, perhaps most appropriately, eyeballs, among the finer examples. Sound is pretty good too – there's some neat sampled voices and a great background track by David Whittaker.



■ *That's your ship moving left to right among the crawlies of the final level*



■ *The scientist longingly waits for you to plough straight through him*

still graphics 5.0
moving graphics 5.0
soundtrack 4.0
lasting interest 1.5

overall 74%

PINBALL WIZARD

ANCO

Atari ST – No version planned

Amiga – £ 19.95 keys

Think of a popular game that can't be simulated. Thought of one?. Thought not. Here's the latest and a brave effort it is too. *Pinball Wizard* is a simulation of an arcade pinball right down to the manic digitised laughter and all those other whacko sound effects.

You can select up to four players, alter play speed, score bonuses, win new balls *(A Wimbledon reference, no doubt – Ed)* and everything else you'd expect on the real thing. But how do you emulate flippers and what about tilt?. Easy!. The [Alt] keys on either side of the space bar act as flipper buttons, while the space bar acts as a tilt function; speeding up the vertical movement of the ball. Hit that bar more than twice in a row and it's a pair of dead flippers.

Whilst all the mechanics are there, what about the feel of the thing? – that old wrist action?. We found the flip combinations worked fine but that the tips of the flippers were less responsive than you'd expect. All the angles are covered, though, even Gravity works out to a fine degree. If there were half a dozen screens sharing that same coding, Pinball Wizard would be a game you'd come back to again and again. As it is, you won't. Well, not after you've seen whether the score clocks over at 20 million!

■ *Hit the right [Alt] key to fire the ball*
■ *Flip the ball up here for bonus points or an extra ball*
■ *Spell the name and take the bonus*

still graphics 4.0
moving graphics 4.0
soundtrack 4.0
lasting interest 3.5

overall 70%

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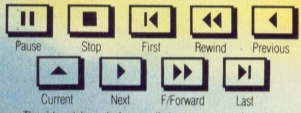

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MUSIC

THE MIDI SYSTEM

Electronic music would not be where it is today if it were not for a unique industry wide interface standard, MIDI. Chris Jenkins sounds out its development and the difference it makes.

MOOG MUSIC

Dr Robert Moog is credited with building the first commercial digital synthesizer and such records as *Switched on Bach* and most of Emerson, Lake and Palmer's early output testify to the fact that it was eagerly taken up by a variety of musicians. To some extent the sounds of electronic music have turned full circle with the current trend to digitise natural sounds into an electronically playable form.

Computer music has changed a lot since the early days, when American institutes used gigantic machines to produce weird bleeps and burbles. Now anyone can make recognisable music *(I can't – Ed)*, either with home computers alone, or with inexpensive musical instruments linked together with MIDI.

The ST and Amiga are particularly suitable for music making, but for different reasons. While the Amiga features the powerful custom sound chip Paula, the ST's sound chip is the standard Texas Instruments device found in everything from the TI-99 to the Sinclair Spectrum 128; it's nowhere near as versatile as the Amiga's. In contrast, the ST is the first (and so far the only) micro to be fitted with a MIDI interface, while the Amiga can only be fitted with MIDI at extra expense.

Overture

You can get started in computer music simply by learning to control the computer's sound chip from BASIC. For most people, though, it's more sensible to invest in an inexpensive software package to discover whether you actually have any musical ability. Remember, the computer can produce the sounds, but it's usually up to you to come up with the tune.

An excellent example package, available on both machines, is *Music Construction Set* from Electronic Arts. Priced around £50, it allows you to experiment with the creation and arrangement of sounds, without requiring you to use external equipment. MCS is fully mouse-driven. The main display screen shows a series of pull-down menus, a music stave (the conventional ruled lines for music composition), a keyboard diagram, a set of utility icons, and a number of note value icons. To compose music, you simply click on the keys you require on the keyboard diagram, or pick notes from the menu and place them on the stave.

Sections of the music can be edited, copied and deleted and you can assign preset instrument sounds to each of the four available voices. On the ST, these are created by the internal sound chip; on the Amiga, they are sampled from real instruments. In both cases, you can define new sounds using the Waveform Editor screen. Most Amiga music packages and samplers allow you to assign sounds to either of the two stereo outputs (another respect in which the Amiga scores over the ST).

MCS even has primitive MIDI facilities, so you can input note information from a MIDI keyboard, or output tunes to the synth. *Aegis Sonix*, a slightly more sophisticated package for the Amiga, allows eight monophonic composition tracks, though still only four of these can be sounded by the Amiga (the others have to be played on external MIDI equipment). *Sonix* also lets you create your own sounds by drawing the basic waveforms, use sampled sounds, in standard IFF file format, or play voices from a MIDI keyboard (though you can't record the performance).

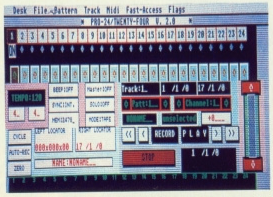
Crescendo

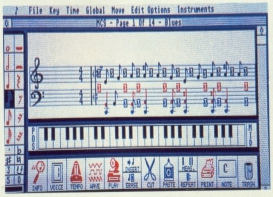
You'll notice that in discussing even the simplest music packages, two buzzwords of modern music-making have started to crop up: MIDI and sampling. Both have made an enormous impact on the professional music scene, and both are available to the home computer user, either in

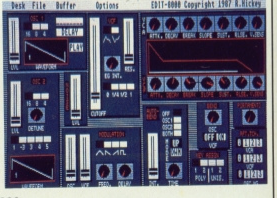
MIDI INS, MIDI OUTS

MIDI is basically a serial communications protocol similar to RS-232. It transfers data from one MIDI device to another in digital 'packets'. Connections are made through five-pin DIN sockets and on most MIDI devices you'll find a MIDI OUT, which transmits signals, MIDI IN, which receives them, and sometimes a MIDI THRU, which passes signals through the instrument to other devices. In the ST, MIDI THRU is hidden on two spare pins of the MIDI OUT socket; not a very convenient arrangement, since it requires the use of non-standard MIDI cables for all but the simplest MIDI set-ups.

MIDI operates on sixteen discrete, numbered 'channels'. Most MIDI instruments can be set to respond to information on these channels in three different modes: OMNI, where the instrument responds to any channel; POLY, where it responds to only one; and MONO, where (on some instruments) you can play several different sounds simultaneously, each responding to a different MIDI channel.







■ *Three Midi sound packages: Steinberg Pro 24, EA's Music Construction Set and Savant Audio Edit 8000*

budget form or in expensive high-quality systems.

In what are laughably referred to as 'the good old days', manufacturers such as Moog, Roland and Oberheim produced large, expensive, complex modular synthesizers. Parameters such as pitch, timbre and waveform of the sounds were chosen by plugging leads into patch boards, and single-note music was played by applying voltages from a keyboard to the sound oscillators. The biggest problem was that instruments from rival manufacturers weren't electronically compatible. You couldn't connect the keyboard from one to the sound-generators of another, or link two different sets of oscillators to produce thicker sounds.

As synthesizers became more powerful, several sound oscillators were combined in one unit to produce 'polyphonic' synths that could play chords. The first big success was the Sequential Circuits Prophet-5, which had five 'voices', a digitally-scanned keyboard voice assign system, and microprocessor memories for sound patches. Other manufacturers followed suit, but still different instruments could not be reliably connected together. In the late Seventies, Sequential Circuits proposed the Musical Instrument Digital Interface (MIDI), and the standard was rapidly adopted by all the major instrument manufacturers.

Legato

MIDI can be used to exchange all kinds of information. The most common is NOTE ON/OFF. This simply tells the synthesizer to play and then stop a note of a particular pitch. The range handled by MIDI is notes 0-127 (C0 to C8).

The second most important form of MIDI information is 'performance data'. This includes parameters like volume (sometimes called 'key velocity'), aftertouch (pressure on the synthesizer keys), pitch bend, vibrato, tremolo, wah-wah and other effects which add expression to the musical performance. MIDI Clock signals allow you to start, stop, and set the playing speed of devices such as drum machines and sequencers. Lastly, you can also use MIDI to transfer sound patch data. Most modern synthesizers can create thousands of different sounds, defined by combining dozens of parameters and values. The blocks of data representing these sounds can be squirted via MIDI to other synths, or computers, allowing sounds to be edited, organised and exchanged quickly and easily. To some extent, the same applies to digital sound samples, which again are basically just streams of numbers held in memory.

Because all this information – note values, performance data, sound patches and samples – is basically digital, computers are perfectly happy to do all the hard work of handling them while you concentrate on composing great music.

Espressivo

The most important software package you can choose is the Sequencer. The original sequencers were analogue devices, using potentiometers to define a simple pattern of notes for voltage-controlled synthesizers. Modern software sequencers are much more advanced and are best thought of as the musical equivalent of word processors; they allow you to record, store, edit and replay musical performances by manipulating MIDI data. Like a word processor, a MIDI sequencer lets you erase mistakes, copy and move blocks of data, and generally polish your production until it's perfect. In fact, a sequencer lets you produce music which you could never play yourself, because it's too complex or skilful.

Because the Atari ST has MIDI ports built in, it has an enormous advantage over the Amiga. Musicians were quick to recognise this, and a number of professional-standard sequencer packages such as

DIY SOUND STUDIO

You can set up a professional-sounding MIDI music system for only a few hundred pounds. There are four main types of equipment you may need: synthesizers, drum machines, recording gear and effects units.

Synthesizers come in two forms: as keyboards, or as keyboardless 'MIDI modules'. While you can play a module from a computer, you'll certainly need a keyboard of some kind, even if it's a 'dumb' controller keyboard which makes no sound itself, but transmits MIDI signals to the modules.

Inexpensive MIDI synthesizers include the programmable Casio CZ-101 and preset CZ-230S, the Yamaha DX100, and the Roland Alpha Juno 1. Modules include the Yamaha TX81Z, Roland MT32 and the Cheetah MS6. Most of these synths will cost between £200 and £300.

Drum machines use sampled percussion sounds, which you can arrange into complex patterns and chain into songs. You can synchronise your drum machine with your sequencer using MIDI clock signals. Most MIDI drum machines allow you to play the drum sounds from a MIDI keyboard, and on some you can insert new sounds, either on chips, data cards, or, in the case of the Cheetah MD8, from data cassettes. Other popular models include the Roland TR626 and Yamaha RX21. Price range is again around £250.

You can pay twenty times that much for decent recording equipment, but the best idea is to start off by spending £3-400 on a 'portastudio'. These combined mixer/recorders let you layer four recordings on a standard cassette. By copying and recopying between tracks, you can then create complex-sounding music with fair recording quality. The advantage of having a good selection of MIDI instruments is that you can do more in each 'take', retaining the original signal quality. Good portastudios are made by Tascam, Vesta and Fostex.

To sweeten your recordings, you might like to invest in an inexpensive effects unit. A decent digital delay or reverberation unit can improve your sounds tremendously, and some, such as the Alesis MidiVerb, allow you to use MIDI control signals to switch from one preset effect to another. Akai and Roland also manufacture good effects units starting at around £150.

■

DIGITAL APPROX

The process of digital sampling is something like the difference between a smoothly curved graph and a bar chart of the same information. Using this analogy, a digitiser checks the height of the curve at various points along its length and draws a column at that point of equal height. The more samples that are taken (the higher the 'sampling rate'), the narrower each column is and the closer the bar chart approximates to the curve.

■

MIDI, MIDI AND MIDI

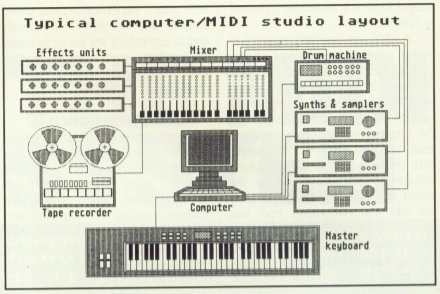
The Musical Instrument Digital Interface (MIDI) has nothing to do with Midi hi-fi systems, which are somewhere between normal size and very small, nor anything to do with the calf length skirts fashionable during the early 70s.

■

Steinberg Pro-24, Sonus Masterpiece, System Exclusive Iconix and *C-Lab Creator* are now common in the largest recording studios. Do you realise that all the tunes you hear produced by Stock, Aitken and Waterman, including hits by Rick Astley, Kylie Minogue and Sinitta, are played almost entirely using *Steinberg Pro-24* on the ST?

Packages of this complexity, featuring dozens of tracks, powerful MIDI data editing features and extras such as synchronisation with video and film, normally cost over £250. However, simple sequencers such as *Microdeal Super Conductor* and *Hybrid Arts Easy-Score* allow you to get going for around £50. The situation isn't so straightforward for the Amiga. There are several MIDI interfaces available at around £50, including the *Midimaster* from Datel, *Skyles* from Supersoft and the Eidersoft interface. If you want to use more than one MIDI instrument, it's useful to get an interface with more than one MIDI OUT; the *Midimaster*, for instance, has three.

Unfortunately, music software available for the Amiga in the UK is largely of the 'home entertainment' type discussed earlier, because the ST took off much quicker among musicians in the States. But the situation for the Amiga is improving slowly. Products such as New Wave Software's *Dynamic Studio* sequencer, and *Music X* from Micro Illusions, are well up to the standards of the ST's *Pro-24* and *Creator*, yet no-one seems keen to import them into the UK. Come on Amiga dealers – get your musical act together!



Variations

Patch editors are also becoming more easily available for both machines. The original synthesizers bristled with knobs, sliders and switchers used to program new sounds. To cut costs, most modern synths use "digital access"; a keypad selects the sound parameter you want to change, and a single slider or wheel changes the value, which is then stored in memory. This is a slow and unwieldy method of changing sounds. Using MIDI, though, you can transmit all the synth's sound data into your ST or Amiga, and use the visual interface to edit sounds quickly, then store them on disk. This works out both quicker and cheaper than buying RAM cartridges or cards full of new sounds, at £50-£60 a shot.

Most of the popular synths, such as the Yamaha DX series, Roland Alpha Juno 1/2, D50 and MT32, Ensoniq ESQ and SQ80, and Korg DW8000 and Poly 800, have suitable editing packages designed for them. Big names include *Dr T, C-Lab, Hybrid Arts* and *Steinberg*. Some packages, such as Hybrid Arts *GenPatch*, allow you to store sounds from any synth (though you can't edit them). You can even store sounds from professional samplers such as the Akai S900, Emax and Mirage. The advantage here is not a saving in storage costs (all samplers use cheap disks instead of cartridges), but the extra editing facilities possible using the micros' 68000 processors. For instance, *Synthworks* on the ST offers you the possibilities of 'harmonic synthesis', where you can define the waveshape and amplitude envelope of thirty harmonics, to create pseudo-real sounds which can be played back through your sampler. Most of these editing and synthesis packages are available on the ST now, and are slowly making their way over to the Amiga.

Allegro, con brio

Possibly the quickest and most enjoyable way to get into micro music is by buying a sound sampler. There are several available for both machines at around the £60 mark, and though they vary widely in the fine details of hardware and user interface, they all do very much the same job.

Eidersoft's *ProSound* sampler is a good example. The hardware consists of an eight-bit analog-to-digital convertor board, which takes sounds from a microphone or line input and digitises them. 'Eight-bit' refers to the format in which the data is stored; you'll also see references to the 'sampling rate', which is the number of times per second that the computer samples the incoming frequencies. Obviously, in both cases, the higher the number, the better the resulting sound quality. Bear in mind that eight-bit sampling will never give you real professional quality; twelve- or sixteen-bit samplers are now standard equipment for professional musicians.

ProSound, and other sampling packages such as the Datel *Pro Sampler* for the Amiga, allow you to edit the start or end of a sample, introduce a loop to create a sustained sound, reverse, copy and mix samples, and play the results from the QWERTY keyboard. The better samplers allow you to compose fairly substantial tunes, while some (including Eidersoft's) feature optional MIDI control. Look out too for more powerful but more expensive packages such as *Future Sound* and *Perfect Sound* for the Amiga, or the incredible £1000-plus Hybrid Arts *ADAP* for the ST, a sixteen-bit system using hard disk storage for up to 42 minutes of compact-disk quality sampling!

Da capo

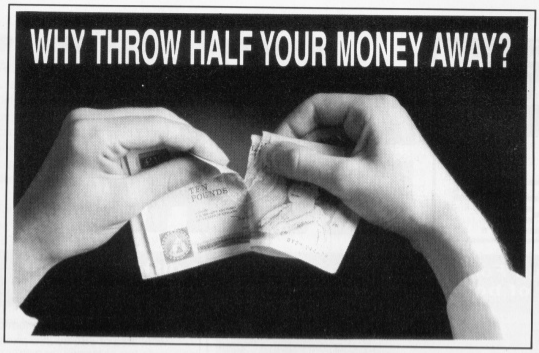
Music is probably the fastest-growing area of computer use, and you can be sure that increasingly sophisticated and affordable packages will be appearing for both the ST and Amiga. Don't worry about the technicalities – the important thing is to jump in and have a go at making music with your micro.

A REPRESENTATIVE SAMPLE

Sampling can be thought of simply as 'digital sound recording'. The computer's memory replaces magnetic tape and stores the sound as a series of numbers. This data can be manipulated before converting it back into sound, thus creating effects such as pitch changes, in the same way as speeding up or slowing down a tape. Editing, looping, splicing and combining real sounds can create fantastic effects, whether you're using a £50 sampler on the ST or Amiga, or an £80,000 Fairlight Series III.

CONTACTS

Datel	***Units 8/9, Dewsbury Road, Fenton Industrial Estate, Fenton, Stoke-on-Trent, 0782-273815***
Eidersoft	***Unit 4, Stannets Laindon, North Trade Centre, Basildon, Essex, 0372 67782***
Electronic Arts	***Langley Business Centre, 11-49 Station Road, Langley, Slough, Berks, 0753 49442***
Hybrid Arts	***c/o Syndromic Music (ST music specialists), 24-6 Avenue Mews, Muswell Hill, London, 01-444 9126***
Microdeal	***41 Truro Road, St Austell, Cornwall, 0726 68020***
Steinberg	***c/o Sound Technology, 6 Letchworth Business Centre, Avenue 1, Letchworth, Herts, 0462 480000***



HALF PRICE GAMES?

If you take your games seriously, you want the best games at the best prices. Now you can get what you want by joining a club. There's **SPECIAL RESERVE**, our buyer's club, and **OFFICIAL SECRETS**, a club for people who play adventure, strategy and the very best arcade games seriously.

SAVING MONEY
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Special Reserve selects the best, the latest, the most advanced computer games and 'gives' them to members, normally **AT HALF PRICE** – or even less. We do have to charge you for post and packing, but even so, as a member of Special Reserve you'll find our prices very hard to beat.

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When you join **OFFICIAL SECRETS**, you get free membership of SPECIAL RESERVE and a host of other goodies. Like a free Level 9 game, *Gnome Ranger*. And top adventure writers **MAGNETIC SCROLLS** (the people behind *The Guild of Thieves* and *The Pawn* amongst others), are busy writing an **EXCLUSIVE**, state of the art mini-adventure for Official Secrets members only. Only Official Secrets members will get to play this game – it's never going to be in the shops or be available elsewhere: a collector's item if ever there was one! As a member of Official Secrets, you get a magazine every two months – called CONFIDENTIAL, it is packed with interviews and features, with a special emphasis on adventuring. Your **FREE** Magnetic Scrolls disk containing the mini-adventure (we're keeping the name secret) comes with Issue Two.

OUR CLUBS – The Full Story

When you join SPECIAL RESERVE, you get a membership card (quote your membership number to buy games) and three editions of our Buyers Guide. You don't have to buy a specified number of games a year – buy as few or as many as you like. Every time you buy a game, you get the current update to your Buyers Guide – and we even provide a binder for you to keep the updates in.

It costs just £4.00 (UK) or £5.00 (other EEC countries) to become a member of Special Reserve for a year. Nearly all games we sell, even the latest releases, are under half price – and we have some special offers that save you even more money! Check out the example prices on this page.

There IS a catch, but not a very big one. Post and packing costs you £1.50 per game if you order by post, £2.50 if you order by phone or £3.00 if you live outside the UK. Go on, add the P&P price to the price of our games opposite – we're still the cheapest, aren't we?

You can't buy ANYTHING from us at all, unless you are a member, but you can join and buy a game (or games) from us at the same time.

SMALL PRINT: We don't accept members from outside the EEC (sorry); all games are subject to availability; we try to despatch your order the day we receive it, but can't promise to get a game to you in less than seven days. You can order new releases in advance, and we'll send your game out the day it is released.

That's SPECIAL RESERVE . . . now for OFFICIAL SECRETS

CONFIDENTIAL!

OFFICIAL SECRETS is for people who want the best games at the best prices AND a whole lot more. It's a club based around a magazine called CONFIDENTIAL. Six times a year, CONFIDENTIAL is mailed to you – a year's subscription costs £19.95 in the UK and £24.95 if you live elsewhere in the EEC. But you get a lot more than a magazine. **Join Official Secrets and you get:**

● **FREE MEMBERSHIP** of Special Reserve. Which saves you £4.00 and allows you to **BUY GAMES AT HALF PRICE**. Full details of the benefits of Special Reserve membership appears elsewhere on this page.

● "Go out and buy *Gnome Ranger*, pronto" said Atari ST User. Join Official Secrets and you don't have to – a free copy of Level 9's *Gnome Ranger* is included with your membership pack. If you've already got a copy of this humorous three-part adventure – tick the box for the Surprise Alternative when you join.

● **FREE MAGNETIC SCROLLS GAME**. Issue Two of CONFIDENTIAL comes with an exclusive Magnetic Scrolls mini-adventure, written specially for Official Secrets members who have a disk drive on the ST, Amiga, PC, Mac, PCW, Commodore or Spectrum (Plus 3). If you have a cassette system or another machine, we've got something else for you that's just as stunning – well nearly . . .

● If you get stuck on a game you've bought from us, we're here to help.

● **PRIZE COMPETITIONS.** Like any self-respecting magazine, CONFIDENTIAL runs free-to-enter competitions. For starters, you could win £500 worth of hardware of your choice . . .

● Six issues of CONFIDENTIAL, a professional magazine put together by Graeme Kidd (ex CRASH and THE GAMES MACHINE) and Nick Walkland (ex ORCSBANE "Adventure Fanzine of the Year"). CONFIDENTIAL gives you all the inside stories from the adventure world and includes news, interviews and opinions on adventure games, simulations and strategy games along with columns, articles and features by leading writers. It's a real, A4 magazine that we'll be selling for £2.00 a copy, but as a member, you're already a subscriber to CONFIDENTIAL.

EXAMPLE PRICES
(Members Only - plus P&P)

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Corruption	(£24.95)	£12.47
Virus	(£19.95)	£9.97
Olds	(£19.99)	£9.99
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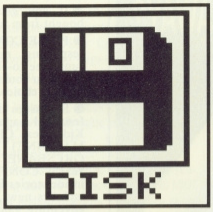
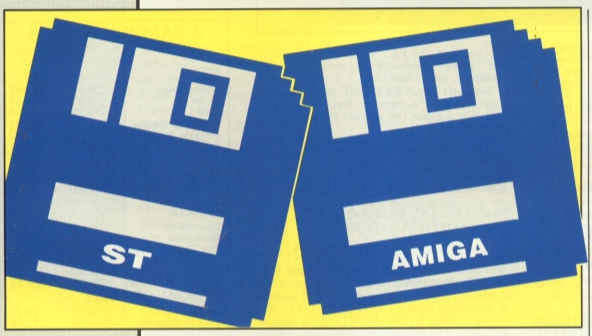


DISK EXTRA

***ST Amiga Format's* unique dual format disk gives you the best of both ST and Amiga worlds!**



ST

AMIGA

WE'RE PAYING £800! FOR GOOD SOFTWARE ON OUR COVER DISK

We're looking for good quality software to fill our cover disk each month. If you're a nifty programmer you could earn big bucks from your labours – games, business applications, utilities, or anything of general interest. We're also interested in any especially original graphics you may have created with art packages, either for inclusion on the disk or printing in the magazine.

Turn to the end of this section for more details on how to get your software onto the ST Amiga Format cover disk.

POWER BASIC

All STs

Last month when we had a look at the different varieties of BASIC available on the ST, HiSoft's Power BASIC came out as the all-round winner. Now you can make your own mind up by experimenting with this full-featured demo!

Starting this month in *ST Amiga Format* is a BASIC tutorial series, and on the ST side we've decided to use HiSoft's excellent Power BASIC as the basis. Month by month we'll take you through Power BASIC's commands. Turn to the BASIC tutorial beginning on page 76 for full details on getting your first program up and running.

If you're already a seasoned programmer you'll want to get stuck right in. Just open up the PBASIC folder, then double-click on the PBASIC.PRG program icon. After a few seconds you'll be confronted with a flashing cursor – this is Power BASIC's program editor. Just type in a program, then from the Program menu select the 'Run' option. This compiles your program to memory and runs it.

You'll see a few sample programs in the folder which you can load and look at to see how Power BASIC is written. It is compatible with ST BASIC, so if you're familiar with that you can type in your favourite programs straight away and see how much faster they run – you'll be impressed! Also in the PBASIC folder you will find a file called PBASIC.DOC – this contains a technical summary for the expert of all the commands available on this demo version, with a syntax of how to use them.

This demo has been cut down in a few ways – after all, HiSoft want you to pay them a fair price for the full system! All the commands are there, but you can't load or save programs to disk. The demonstration programs can be loaded, but only because they are specially encoded. You won't be able to load any files apart from those provided on the *ST Amiga Format* disk.

STARRAY

All Amigas ■ Mouse or joystick

We're always trying to bring you the best games demos, but this time we reckon we've excelled ourselves. A pre-production demo of StarRay appeared in the Format offices recently, and we were so impressed by the 3D depth scrolling graphics that we collared Logotron's programmers and got them to specially compact the demo to fit on our disk.

Remember Defender? The classic arcade game from the early 80s?

StarRay is based on the same theme, but the graphics move it into a whole new dimension. Logotron call it a "horizontal parallax scrolling shoot-'em-up" – sounds impressive, even if no-one knows what it means!

The demo is self-booting – just reset your Amiga and put the Format master disk in the drive. There's about five seconds of psychedelic flashing on the screen as it loads – don't worry about this, and don't touch the Amiga while it is doing it. Press any mouse/joystick button to start. There are no sound effects on this demo, so it's great for playing into the small hours.

Don't just sit there, load it up and get zapping!

PRODUCT SELECTOR

ST and Amiga

When you want to buy software for your ST or Amiga, what do you do? Look through dozens of back issues of magazines, scour the adverts and try to work out whether a MegaPack is a database, a disk box or an infectious disease?

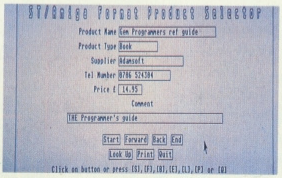
Now we've done all the hard work for you. On this month's disk you will find an interactive database with a complete list of products that we know of (except games) for both ST and Amiga. If you run the Selector on an ST, all you get is ST products; on an Amiga, all you get is Amiga stuff.

When you run the product selector, there is a short delay while it reads its data file from disk, then you are faced with a screen with boxes labelled 'Product Name', 'Product Type', 'Supplier', 'Tel Num', 'Price' and 'Comment'. Also on the screen are panels you can click on to browse through the data. The first in a list of every ST or Amiga product under the sun is displayed.

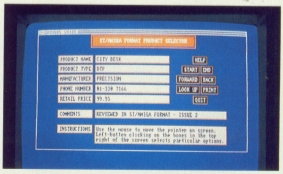
Clicking on 'Start' takes you to the first entry on file, 'End' takes you to the last. 'Forward' takes you forward one record, and 'Back' – sur-

■ MY PRODUCT'S NOT THERE!

If you find your latest Armadillo Breeding package conspicuously absent from either product selector, please let us know so we can update our lists for next time. Even if your software is not of such mass appeal, we'd still like to know about it. Please note, though, that the product selector doesn't carry details of games programs or hardware. ■

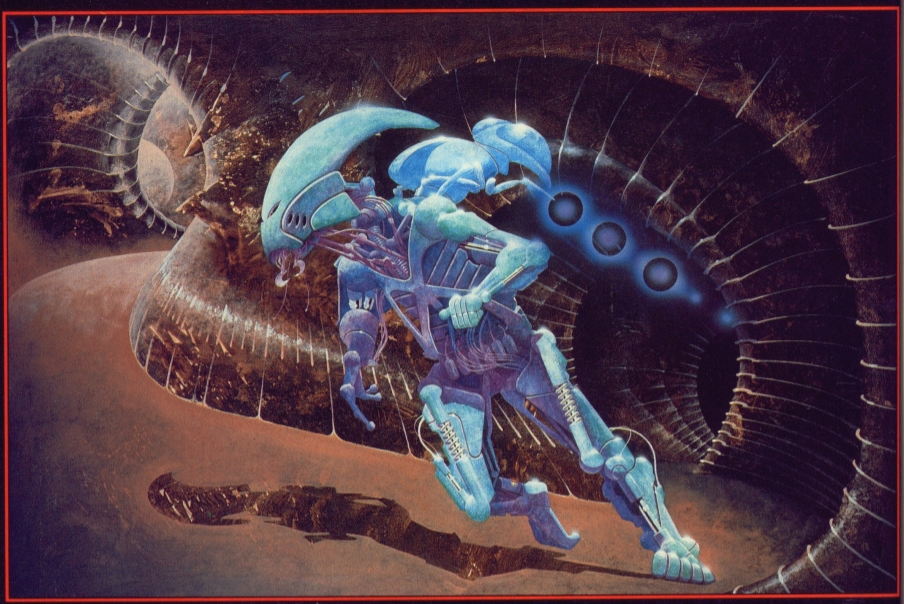


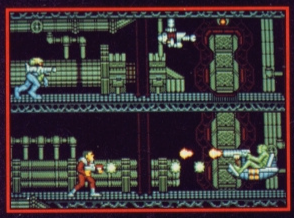
■ *The ST Product Selector*



■ *The Amiga Product Selector*

OBLITERATOR





OBLITERATOR

You are Drak the Last of the Obliterators, a genetically enhanced and awesome fighting machine, bio-engineered for the execution of incredible tasks, the ultimate solution to the most cataclysmic of predicaments.

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Summoned by the Federation council, your assignment is to use a prototype matter transporter to infiltrate the alien cruiser. Armed with a particle beam disrupter, lasers and whatever the alien habitat can provide, you must cripple the alien vessel thus enabling its destruction.

OBLITERATOR — £24.95

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Deep Space	— £24.95
Arena	— £24.95
Brataccas	— £24.95
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All available for 512K Colour, Atari ST, Commodore Amiga.

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prise, surprise – takes you back one. 'Print' sends the current record's details to the printer, if you have one, and 'Quit' ends your session with the Product Selector. You can use the initial letters of each command as an alternative on the ST version.

The real power of the system comes when you start searching through the data. The idea is that you specify limits on the kind of products you are interested in, and only the products which fit the description are listed. For example, you might want to know about all word processors that cost less than £50 – no problem:

Click on 'Look Up' and you can specify your requirements. When you do this, the boxes go blank and a cursor appears in the 'Product Name' line, so you can type in product details. Using the ↑ and ↓ keys (on the ST) or the [and] keys (on the Amiga), move the cursor down to the 'Product Type' field. Now type `WP` (you could enter any of the categories from the list below, but make sure you type it exactly as it is printed). Move the cursor to the 'Price' field and type `<50`. Press [Return] and the appropriate items are hunted down.

Follow the screen prompts to either print out the current record or skip to the next one. When all the matching records have been run through you will be returned to the main menu to choose another function, or to quit.

The product types you can specify are: BOOK, ACCOUNTS, BUSINESS, COMMS (Communications software), DATABASE, DESK ACC (ST only – Desktop Accessory), DTP (Desktop Publishing), EDUCATION, GRAPHICS, LANGUAGE, MUSIC, SPREADSHEET, UTILITY, WP (Word Processing). Games are not covered – there are too many and details change too fast.

In fact, you can set any field you like – you might want to see all products that Kuma manufacture. Just type `Kuma` in the 'Supplier' category and press [Return]. You could even search for products by phone number if you wanted! Under price, you can use the < (less than), > (greater than) and = (equal) signs to set a numerical limit. Entering `>100` restricts the search to products over £100.

RUNNING IT ON THE ST
From the general CLICK_ME menu program, press [f5] for the Product Selector option.

RUNNING IT ON THE AMIGA
Open the Product Selector drawer, and double-click on Product Selector. The Amiga can be slow to respond to keypresses – be sure you make each keystroke firmly.

ST

First copy and load the disk as described at the end of the Disk Extra section.

DIGICALC

All STs

Digicalc is a new spreadsheet from Digita International aimed at first time users. We've reviewed it fully earlier in this issue – have a read of those pages for a feel of how it works, and a walk-through of a simple application.

To get going, click on DIGICALC.PRG in the DIGICALC folder (or select the Digicalc option from the CLICK_ME menu program). A row of menu titles is displayed on the second line of the screen. These don't work in the normal GEM way – here you have to click the mouse button to call up a sub-menu on the line below. Whenever you are asked to enter data, type it in and press [Return] to proceed. Press [Esc] at any time to abandon a menu and go back to the ordinary screen.

```
A1  :  "Gloves
Attr  Copy  Del  File  Goto  Hold  Ins  Misc  Os  Tit

   A:PRODUCT   B:PRICE C:20% D:30% E:40% F:50% G:60% H
-----------------------------------------------------
 1|Gloves        20.00 16.00 14.00 12.00 10.00  8.00
 2|Hat           25.00 20.00 17.50 15.00 12.50 10.00
 3|Coat          64.00 51.20 44.80 38.40 32.00 25.60
 4|Socks          5.99  4.79  4.19  3.59  2.99  2.40
 5|Tie          12.95 10.36  9.06  7.77  6.47  5.18
 6|            --------
 7|             127.94
 8|
 9|
10|
```

■ *Digicalc crunching the numbers*

There's a demonstration file on the disk, called DEMO.SPR. To load this click on the 'File' menu, choose 'Load' and type `DEMO`[Return]. Experiment by typing new data into cells and seeing how the values in other cells change.

In this demo version, there is no facility to save files to disk. However, you can print your spreadsheets out.

DESKTOP ACCESSORIES

All STs

In this folder are two handy utilities which will add themselves to your 'Desk' menu and can be used whenever you are running a GEM program.

These utilities can't be run by clicking on their icons. To use them, open the ACC folder and drag the files TINYTOOL.ACC and FREE_RAM.ACC to the top level directory of the disk (users of STs with single-sided drives may need to copy the files to a disk other than the back-up of our cover disk), so they are not in any folder. Now reset your ST and they will be loaded. Look on your Desk menu and they'll be there, raring to go.

FREE RAM
Does what it says – select it from the Desk menu and it displays the amount of free RAM in your system.

TINY TOOL EDITOR
Format Health Warning: This utility should only be used by experienced programmers. You can seriously damage your disks by incautious use of it and ST Amiga Format can't accept any responsibility for such damage.

Tiny Tool allows you to edit any byte in memory or on a disk. It runs by a fairly self-explanatory series of click-panels. You can enter data in decimal or hex, and nothing is changed until you explicitly click the Write panel.

When editing disks, drive A is drive 0 to Tiny Tool, drive B is 1. Legal sectors are 1 to 9, legal tracks 0 to 79. Reset takes you back to Tiny Tool's opening screen. To quit, click on the Close Window icon.

MEGAROIDS

All STs

Get yer 10p's out. Well, figuratively speaking. This is a wonderfully nostalgic version of the old arcade classic Asteroids, complete with green cheese boulders flying around and UFOs buzzing you.

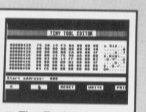
Run Megaroids either from the CLICK_ME menu or by clicking on MEGAROID.PRG in the MEGAROID folder. A title screen shows the keys you need and along the top of the screen are a row of menus which you use in the normal GEM way. To start the game put the mouse pointer over 'Start' and choose a 1 or 3 game sequence.

The secret is to bang the rocks together, guys!

DISK

AMIGA PRODUCT DETAILS

A lot of Amiga software is imported from the U.S. Rather than quote American phone numbers, where we don't know of a U.K. distributor the phone number slot is blank. Two helpful distributors who import a lot of U.S. stuff are The Amiga Centre Scotland (031-557 4242) and HB Marketing (0895 444433) – they should be able to get hold of most things.



■ *Tiny Tool running over the STs memory, peeking and poking to its heart's content*

XORBITANT

Exclusive-ORing, pronounced Eggsoaring by the cognoscenti *(pronounced Cog-no-sent-ee – Ed)*, is a clever graphics technique for merging two images together. Given a basic pixel image, when you superimpose another one the result is worked out as follows: if both images had a blank pixel in a spot, the final pixel is blank too; if either one *or* the other had a white pixel then the result is white; if *both* image pixels were white, the result is blank. One neat trick with XORing is that if you take an image and redraw it over itself in XOR mode, it is deleted. This can be useful!

DISK

■ *Megablit happily working on an imported Degas file*

MEGABLIT

All STs

A window-based paint program with very large work area and many powerful drawing facilities that runs in any resolution. Scroll bars are used to move around the massive work area (384 by 256 pixels in colourful low resolution up to a staggering 2560 by 1920 in monochrome).

Unlike other graphics utilities which divide memory up into eight or so segments for pictures, Megablit treats memory as one large picture; the screen is used as a small window through which to look. You can draw lines, arcs, rectangles, ovals and pies; you can zoom, snap to grid, cut and paste, and all the usual art package functions.

When you paste new graphics over old, or draw lines, Megablit has four 'blit', or line-drawing, modes. Standard 'replace' mode causes previous drawings to be erased and 'transparent' mode simply draws lines without erasing what's underneath. 'Xor' exclusive-ors whatever is on the screen with the new graphics, which is a more subtle way of superimposing two images than using Transparent mode – try it and see. 'Inverse' mode is like standard mode except it draws black where there would be white and vice-versa.

Megablit can load Degas files, so you can use you existing art files as the basis for a massive poster! Experiment with the menus and see what's there

AMIGA

First, copy and load the disk as described at the end of the Disk Extra section. These programs run on both the Amiga 500 and the 2000. We have been unable to test them on older versions of the Amiga 1000.

VILBM

All Amigas

You don't need to be told that the Amiga is the ideal machine for creating sophisticated graphics. Loads of colours, high resolution, and no shortage of superb art programs. But once you've got a diskful of masterpieces, what do you do with them?

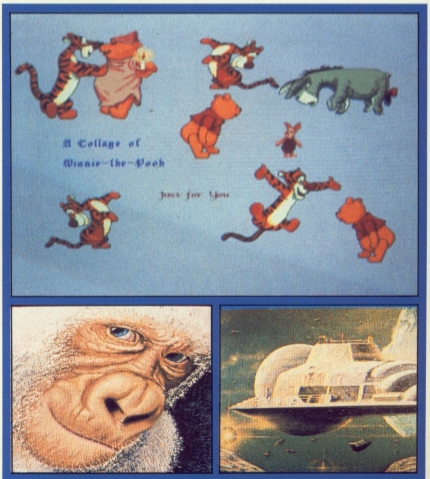
Vilbm is a slide-show utility which lets you display almost any set of Amiga graphics files one after the other. You give it a series of files, and it displays them in turn. It doesn't matter what resolution you saved the picture in.

In the Vilbm drawer on the disk is Vilbm itself and three saved art pictures, under the picturesque mountain icons. Vilbm uses the Amiga's 'extended selection' mechanism – covered more fully in the Workbench tips pages later in this issue. To display just one picture, click once on the picture file you want to show, so the icon is highlighted, then hold the [Shift] key down and double click on the Vilbm icon. The picture is displayed until you press the left mouse button, whereupon you are returned to the Workbench.

Try displaying all the pictures in the folder: click on the first picture icon, hold the shift key down and click on the rest, then shift-double click on Vilbm. The pictures are displayed in the order you clicked on them, pausing for you to left mouse click between each.

Vilbm also works from the CLI. To display the three pictures Gorilla, Poohcollage and Spaceship you would type `Vilbm GORILLA POOHCOLLAGE LEGEND`, ie. just put the filenames one after the other on the command line, separated by spaces.

If you run Vilbm without a picture file (by double click on it's icon alone) it shows you a few screens of help



■ *Click, Shift-Click, Shift-Click and Shift-double click sets your slide show going.*

■

FUNNY NAME?

For those of an inquiring nature, Vilbm stands for "View Interleaved Bit Map". In practice, ILBM files are the same as the famous 'IFF' (Interchange File Format) files that all Amiga graphics programs use. Any art package that claims to save in IFF format will work fine with Vilbm.

■

text and plugs for other programs by the same author.

RSLCLOCK

All Amigas

First impressions can be deceptive – don't make the mistake of thinking that RSLClock is just another clock display program. Behind its simple visage are a clutch of mindbogglingly useful utilities to help the simple Workbench user and seasoned CLI hacker alike.

You can arrange to have a constant display of how much free memory you have and how much free disk space there is; you can call up a new CLI window; you can blank the screen off to save your valuable phosphor, and of course you can have the time and date displayed for you.

The simplest way to run RSLClock is from the Workbench. Open up its drawer and double-click on its icon. You will see the title bar at the top of the screen change to show something like "RAM: 667K Time:12:29:45 PM". What has happened is that a new window has been opened and positioned over the Workbench title bar; the window is only one line deep, with no scroll bar or close gadgets. You can move it like any other window by dragging it around.

The RSLClock display is actually a standard window title bar. It *does* have a close gadget at its left, and send-to-back and bring-to-front gadgets at the right, although the usual symbols for these aren't shown. If you click the mouse at the extreme left – where the close gadget normally is – RSLClock will shut down. The send-to-back and bring-to-front gadgets are also there hidden at the extreme right of the bar. RSLClock will pop to the front of the display at every change of minute count, so even if you have sent it to the back it will reappear!

RSLClock can also be run from the CLI. Note that because RSLClock is a permanently running window it doesn't finish so the CLI prompt will not return – use RSLClock's 'Open New CLI' command to get a new CLI window.

Options

RSLClock has a menu for extra options. First, make the RSLClock display the currently active window, by clicking the left mouse button on it. (Don't click at the left end or you'll hit the undisplayed Close gadget!) Now hold the right mouse button down and you'll see the 'Options Available' menu title appear at the top of the screen.

Open new CLI

If you are working in the CLI and a task locks up on you, there is normally no way to type commands in to the Amiga. Use this option to call up a new CLI window.

Enable Backdrop Screen

A totally blank screen is created behind your current windows. If you have to leave your Amiga for a long time and you don't want to turn it off, you can save your monitor's phosphor. With the backdrop enabled, first make the RSLClock display the active window (click on it) then double click the right mouse button. The screen blanks – press any key to reactivate the display.

Modify PopUp Feature

Normally the RSLClock display pops to the front every minute even if you send it to the back. You can stop it popping up by selecting 'Disable all PopUp', and reactivate it by 'Enable Standard PopUp'.

Enable 24 Hour Format

Toggles between 12 hour AM/PM and 24 hour display

Enable Free Disk Space

Allows you to have a continuous display of how much space is free on one disk drive. You can choose from DF0:, DF1: and DH0: (a hard disk). Unfortunately it doesn't allow you to specify DF2:, which is what the A2000 calls its second drive.

Show Fast & Chip memory

Splits the free memory display into 'Fast' and 'Chip' memory counts. This doesn't have any effect on an unexpanded A500.

Change Window Colors, Highlight Colors, Shrink Window Smaller, Credits

Try them and see!

HAVING TROUBLE WITH THE DISK?

We have done our best to check that the programs supplied on this month's disk are simple to use, error free and have no known viruses. However, we cannot answer telephone queries on using the software, and we do not accept liability for any consequences of using the programs.

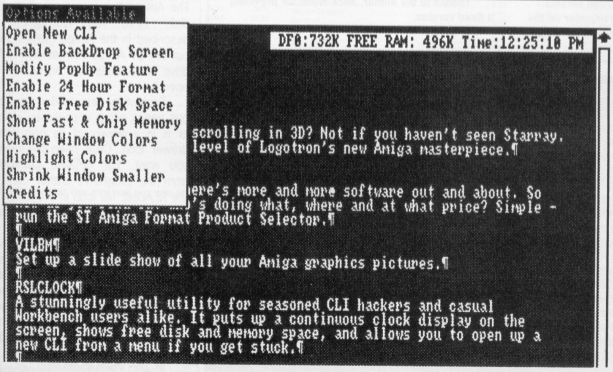
If your ST Amiga Format disk is faulty – and out of 40,000 duplicated some are unfortunately bound to be – you should send it back for a free replacement to:

ST Amiga Format August Disk, DisCopy Labs, 20 Osyth Close, Brackmills, Northampton NN4 ODY.

AMIGA OWNERS: if your Amiga refuses to accept the disk, try using the DISKDOCTOR utility on your Commodore Workbench disk to rescue it before sending off for a replacement. We covered DISKDOCTOR fully on page 93 of issue 1. Don't worry that every track gives you a 'hard error', this is the Amiga being unable to read the ST software on the disk.

DISK DOCUMENTATION

Many of the programs on ST Amiga Format disk are Public Domain. In such cases we've simply passed on their standard documentation files unchanged, as is required by the PD code of practice. Some of the phrasing is 'idiosyncratic', shall we say, so please don't blame us for misspellings!



■ ***RSLClock running at the same time as a word processor, Scribble. You can see at a glance how much free RAM and disk space there is, by the display at the top right of the screen.***

DISK

HOW TO USE THIS DISK

The ST Amiga Format cover disk is a special format disk which both the ST and the Amiga can read. Even if you are a seasoned computer user, please read these instructions carefully or you could permanently damage the disk.

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal bulk disk copying methods as recommended in the Amiga and ST manuals won't work. Instead you will need to format a blank disk and copy all the files you need individually. Don't panic, this isn't at all difficult.

ON THE ST (assuming a single drive machine)

1. Take a blank disk and format it in the usual way.
2. With the blank disk still in the drive, double click on the A disk icon to open up the (blank) contents window.
3. Now drag the icon for disk B into the open window of disk A. This will copy all the files one by one off the master disk to your new disk. *Make sure that the master ST Amiga format disk is write protected* (the sliding tab should be back so that the hole is open) and put it in the disk drive when asked for disk B.
4. You will now be prompted at various times to insert disk A and disk B while copying takes place. There will be a lot of swapping to do on a single drive ST! Disk B should be the master disk, disk A your newly formatted copy.

If you want to cut down on disk swaps and you understand enough about the ST's GEM system, you can set up a RAM disk using the utility provided on the July 1988 disk and use that as an intermediate step.

ON THE AMIGA (assuming a single drive A500)

1. Start your Amiga up with your normal Workbench boot disk.
1. Take a blank disk and initialize it in the usual way.
2. *Make sure that the master ST Amiga format disk is write protected* and put it in the disk drive. Double click on the disk icon that appears. Drag any icons you see in the contents window onto the 'RAM disk' icon.
3. When the disk activity light has gone out, put your newly formatted copy disk in the drive instead. Double click on the RAM disk to open its window up, and drag icons from that onto the new disk icon. This will copy the files one by one.

The programs may not all fit in the RAM disk at once on an A500 – do whatever will fit, then after step 3 delete them from the RAM disk by clicking once on each and, holding the right mouse button down, selecting 'Discard' from the Workbench menu. Then repeat steps 2 and 3 for the rest of the icons.

Using the programs

ON THE ST

When you turn the ST on and put your working copy of the disc in the drive, you will see a window opened with the contents of the disc displayed.

One of the icons is called CLICK_ME.PRG – just do what it says, double-click to run it. Up comes a list of the disk contents. Type the number of the program you want to run, and you are asked whether you want to read the disk help file or not.

You will now be asked whether you want to run the program or not. For technical reasons TINYTOOL.ACC and FREE_RAM.ACC *cannot* be run from CLICK_ME on the current disk. You can use CLICK_ME to read their documentation files, so follow the running instructions that appear for each.

ON THE AMIGA

The Amiga disk is not a self-starting disk. First, run Workbench as described in the Amiga manual. Now put the ST Amiga Format disk in the drive and double-click on its icon to open it.

Each utility described in the previous pages either appears as an icon or is in a drawer of its own with a drawer icon. Click open the drawer you want. For detailed comments from the program's author click on the README file icon in the folder; to run the program click on the main icon.

When you click on a documentation file, a new window is opened and the text is displayed a screenful at a time. To continue reading the next screenful, press any key; to cancel the reading process click on the Close gadget at the top left of the text window.

The CLICK_ME icon gives you a brief summary of the disk's contents and how to use it.

COPYING STARRAY

StarRay is a self-booting program and you can't copy it to your backup disk simply by dragging its icon. As long as the write-protect tab on the master disk is open you should be able to run it from that quite safely.

StarRay can be copied from the CLI. You need to FORMAT and INSTALL a disk, then copy onto it the file STARRAY_DEMO and the entire S directory. Your copy disk should now self-boot with StarRay

LAST MONTH'S MONO ST EMULATOR

The ST mono emulator on last month's ST Amiga Format cover disk appears not to work on newer STs – this is due to a difference in the ROMs. (Boy, the number of phone calls we've had!)

On this month's disk is a corrected version which will work on all STs. It doesn't appear on the CLICK_ME menu program – instead you will find a folder called MONOWARE on the Desktop. Open this up and use the MONOWARE.PRG program in it in place of last month's version. Full instructions were given in issue 1.

Thanks to the author, Mick West, for providing a fixed version.

WE WANT TO GIVE YOU MONEY!

If you've got any programs for either ST or Amiga which you think other readers would find useful, interesting or amusing, we'd like to know. Here's how to go about securing international fame for yourself:

1. Only send in programs on 3.5" disks; we cannot accept printed listings.
2. Make sure your disk is clearly labelled with your name and address, the program name(s), and marked 'ST' or 'Amiga'.
3. Make sure there is a documentation file on the disk called README.
4. Enclose a clear covering note explaining what the program does, and if you possibly can please also send a printout of any on-disk documentation files. Remember your address and telephone number. Include a stamped return envelope for the disk if you want it back.
5. THIS IS IMPORTANT: there must be a signed statement that the program is yours and that you are prepared to assign publication rights to ST Amiga Format. Use the following wording:

The program/s (write the title here) is/are submitted for publication by ST Amiga Format magazine. It is my own work and has not been submitted for publication elsewhere.

Signed ...

If we accept your program, we will get in touch with you before publication to agree terms and payment rates. We will evaluate all submissions in a batch once a month, so please allow up to 40 days for return of your disks. We will only send back disks with adequate return postage and packing.
6. If you send us a disk with a virus on it, we reserve the right to send round the heavy mob in the small hours and do unspeakable things to your pet budgie. Seriously, since we've already given you Virus-killer programs (in Issue 1), do check your disks very carefully.

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PUBLIC KNOWLEDGE

TIPS

The Amiga has the most active Public Domain sphere of any microcomputer around today. There's a staggering amount of high quality, useful software out there – ask, pay a copying fee, and ye shall receive.

It's all to do with modems and comms, you see. America is big. Really big. You thought it was a long way down the road to the chemist's, but that's peanuts compared to America (with apols to Douglas Adams). This, coupled with the fact that AT&T are a lot more together than BT, encourages Americans to use modems and comms a lot more than we do.

There are literally thousands of 'bulletin boards' in the States, acting as clearing houses for software of all kinds. Public spirited types send ('upload') new programs they have written for others to download. These programs are declared 'Public Domain' – they may be freely used and distributed.

Public libraries

If you're in the UK, even if you are one of the lucky few with a modem it isn't really practical to ring up the States for software, and the Bulletin Board network over here is tentative to say the least. Luckily, there are alternative sources. Three or four groups have emerged in America which have collected the best PD software from bulletin boards, and have catalogued it onto a series of disks. You can buy these disks in the UK at a fairly nominal cost – just the price of a blank disk plus a copying charge, about £3 usually. The most famous such 'collection' is the so-called Fish Disks. Fred Fish lives in California, and as a hobby collates and distributes PD software disks. There are now about 140 disks, and new ones are released each month.

The next best known PD library is the Amicus collection, based on software by the American 'Amazing Computing' magazine, which runs to about 30 disks. Other American operations are the FAUG library of 50 disks, PaNorAmA with 60 disks, APDC and Slipped Disk with 40 disks. There's also a German outfit called AUGE with 15 or so disks.

Don't be fooled into thinking that every disk is different though; most of the best software is in all the libraries, just spread out in a different order. The FAUG collection is a bit different though – it has a lot of demos of games and commercial software like desktop publishers, so if you're thinking of buying a major package it might be worth seeing if you can get a try-before-you-buy demo from FAUG.

The PDers toolkit

By now, you'll have got the idea that there's an awful lot of PD software out there. Between the different suppliers in the UK there must be getting on for 300 different disks – even at a bargain £3 each no-one's going to blow a grand to get the lot. So how do you choose a few really useful ones?

The PD companies often have their own compilations of the most useful stuff, and may offer a starter pack of five disks or so. Fred Fish has

WEIRD!OE@S

Sometimes the Readme file with a PD program is called 'POSTER' – this is because PD software in America is often distributed by 'posting' it to bulletin boards, and a POSTER file is the standard covering text file. You'll often be told by the author "if there are any bugs, contact me at mwm@ngp!dave-sun.com". This weird name is the author's electronic mail address on one of the American comms networks.

FIRST ENCOUNTERS

By and large, Amiga PD software on any of the main library collections is well tested and includes a documentation file on the disk. Even so, if you've never used the CLI (the command line rather than the WIMP interface) you may well find things confusing.

One of the problems with the Amiga's Workbench system is that unless a programmer takes the time and trouble to draw an icon for a file, that file cannot be seen from the Workbench window. (By contrast, on the ST every file shows up on its GEM Desktop). Many PD programs haven't been 'Workbench-ised' because the author is assuming you can use the CLI and don't need to be hand-held with icons.

If you're lucky, there will be icons there: when you boot your machine up and put the PD disk in you might see a set of drawers, each with an icon in it and a Readme icon you can click for instructions.

More likely though, is a blank window in the Workbench. This means the files are all CLI files and have no icons. To run these files, open up a CLI window (by clicking on the CLI icon in the System drawer of your Workbench disk) and type DIR [Return] to see something like:

```
Ferret (Dir)
Vole (Dir)
Stoat (Dir)
Readme
...
```

Most likely, each utility on the disk is in a directory of its own, and there's a Readme file at the top level to direct you to what's where. To read the Readme file (assuming it actually is called 'Readme') type:

```
TYPE README [Return]
```

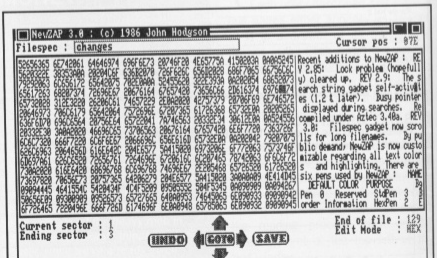
To pause the display press the space bar, to continue press the backspace key. To get a printed copy use the command

```
COPY README TO PRT: [Return]
```

To actually run the software, first you'll need to move to the directory which holds it.

```
CD FERRET [Return]
```

takes you into the Ferret directory, where you can type `DIR` again to see what's there. You should see another Readme file which will tell you exactly how to run the program or programs in that drawer. Any filenames that have spaces in them need to be enclosed by double quotes. For example, if a file is called Read Me instead of Readme, you would need to use the command `TYPE "READ ME"`.



■ *Working through a file's bowels with NewZap (Fish disk 58)*

compiled his favourite selections onto three 'GoldFish' Disks (ho, ho) – these make a good base for any PD collection.

Here are some get-you-going choices from the Fish library – the disk number to ask for is given in brackets:

Recommended for Workbench users

These programs all have icons to be clicked on and are easily used without any knowledge of the CLI. Generally these are fun demos and games, rather than deadly serious applications:

Amoeboids (Disk 120)
A truly excellent version of Space Invaders; you could almost believe the screen had authentic plastic strips over it!

Art files (Disks 45, 72)
These two disks have plenty of saved pictures in all resolutions for you to load into Deluxe Paint or any art package and play with. They can also be used with the slide viewer on this month's cover disk.

Juggler (Disk 97)
The classic juggling-balls Amiga demonstration – you've all seen it, but it's still brilliant.

Life 3D (Disk 70)
A novel variation on the old theme of the cell-generation game. Watch pretty patterns mutate and tell your friends it's a deeply intellectual mathematical exercise.

WBLander (Disk 114)
A cute Workbench 'hack' – just click on it and watch the digitised sound and pictures.

VirusX (Disk 137)
If you missed it on last month's cover disk, this is the best Virus exterminator there is. Hangs around in the background checking all disks as you use them.

Asteroids (Disk 122)
Slightly peculiar version of the classic game – uses an 'interlace' screen so it flickers. But great sound effects, fluid animation, and an 'alarming' (but harmless) aftertaste!

IFF2Pcs (Disk 136)
A neat program which takes a picture file you specify (standard Deluxe Paint/IFF type) and fragments it into a random jigsaw for you to reassemble. Three levels of difficulty.

Recommended for CLI users

These programs assume you understand how to navigate your way around the CLI, and do a little hard work to adapt them to your needs. These are more in the line of tools for programmers than frivolities:

Snapshot (Disk 73)
At the press of [Ctrl] and [Esc] you can save the currently active screen as an IFF file on disk. Coupled with a slide viewer program, this is great for making up a series of instructional screens to illustrate something.

VT100 (Disk 138)
A very full-featured terminal emulator, with Kermit, Xmodem and ASCII send/receive. It's even got a command language for sending files in batches. Hasn't got Viewdata emulation (for Micronet), but would be fine for using with Microlink, Telecom Gold or any UK Bulletin Board.

ConMan (Disk 133)
A utility which gives you an enhanced CLI system – the best thing is the ability to call back your last few command lines if you make typing mistakes.

mCAD (Disk 59)
A nice structured drawing package – ideal for simple CAD applications, but runs in interlace mode (flickers a lot!). It's object-based rather than a pixel painting package, which means that shapes are easily moved and resized.

Xicon (Disk 102)
Gives you the ability to run CLI command files from a Workbench-clickable icon. This means you can run any program or sequence of programs from the Workbench; there's also a neat text-display window for showing Readme files.

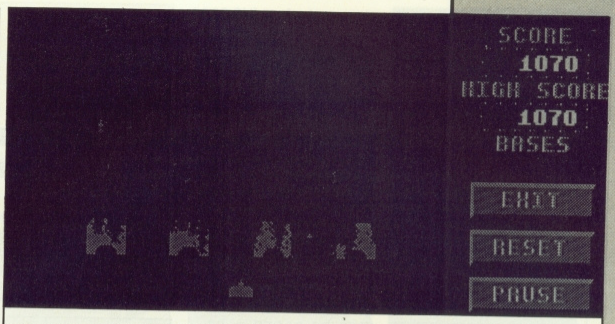
Newzap (Disk 58)
A file editor, to change any byte in any file. Apart from serious hacking, this can be fun for being really silly and hacking the error messages in a program.

Diskzap (Disk 50)
A disk sector editor. As with Newzap above, this is only for real hackers, as incautious use can damage your disks and health. Has one or two bugs, but is generally pretty useful.

DPSlide (Disk 11)
A sophisticated slide viewing program – you create a script of which programs to show in which order; you can fade from one to the next, show text files and set different display times for each one.

ASM68K (Disk 81)
A pretty good 68000 assembler system.

Arc (Disk 70)
A file compression utility – this is virtually the standard in America for squeezing files to send over comms links, or just generally archiving material to save disk space. This one's shareware.



■ *'Amoeboids' – the great little Space Invaders game from Fish disk 120*

■ *The ubiquitous icon for all Fish disks*

THE SUPPLIERS

In the UK, the following companies that we know of supply Amiga PD software:

GEORGE THOMPSON ASSOCIATES, Freepost, Dippen, Brodick, Scotland KA27 8BR (077 082 234). Fish (inc. GoldFish), Amicus, FAUG libraries. £3.00 each.

THE AMIGA PD LIBRARY, 140 Rushdale Road, Sheffield S8 9QE (0742 588429). Fish, Amicus, FAUG, Slipped Disk, Panorama and own selection disks. £3.00 each.

SOFTVILLE, 55 Highfield Avenue, Waterlooville, Hants PO7 7PY (0705 266509). Fish, Amicus, APDC and own selection disks. £3.00 each.

SHARE AND ENJOY

Some material on PD disks is in the slightly different category of 'Shareware'. This is freely distributable, but if you copy a shareware program from somewhere and, after trying it out, decide to keep and use it, you are asked to send a donation to the author (usually £10-£25). This usually buys you the latest bug-fixed version and a manual. In practice, the shareware concept doesn't always work; particularly in the UK it's just too much trouble to send $25 over the Atlantic.

GAME BUSTERS

If the bad guys cause suffering and you want 'em beat. If you need more lives and ya wanna cheat. Where ya gonna go? Gamebusters! All the facts you need to get further in your game playing.

OBLITERATOR
■ *Amiga*

When you walk through the entrance, keep the left mouse button clicked and continuously move the mouse up and down. Drak should then keep walking towards you, which is in a downward direction. This allows you to walk through space and go down to the next level avoiding any aliens. This often gets you out of tricky situations. Do not let go of the mouse button unless you are near the floor of the level.

R Ackroyd
Bradford, Yorkshire

ENDURO RACER ■ *ST*

When the timer has counted down type CHEAT followed by any of these keys:

S to skip a level
F for turbo speed
T for extra time

Stuart Green
Aughton, Nr Ormskirk.

THE THREE STOOGES
■ *Amiga*

When you are on the 'Doctors Wanted' stage, drive your buggies at the same speed as the male nurse pushing the patient. keep a fraction behind them; this enables you to accumulate a high score without any danger of collision. During the 'Slapping' game, tweaking Curly's ear gives the best result as he rarely ducks out of the way.

R Ackroyd
Bradford, Yorkshire

ECO ■ *ST*

During the game, a stab of [Ctrl]S sends you to the game design screen. Another gene will automatically be unlocked.

Michael Brown
Charlton-cum-Hardy, Manchester

JINXTER ■ *ST and Amiga*

Here's part of the solution to Rainbird's Jinxter (other half next issue): To get past the bull show it the tablecloth. You lose luck so go south from the grassy field, wear gloves, hold wire with gloves and cut it with the secateurs.

The Walrus charm can be found by going to Xam's back garden; you will hear a knock at the door. Go out and get note out of the postbox. Go to study, dial number and exit. When you get the cheese, melt the plastic key twice and go out. Unlock the postbox with plastic key and get charm out of the parcel.

To catch the mouse get the trap out of the shed and take it to Xam's house. Get candle and matchbox, get match, go to kitchen, open door, strike match and light candle with it. Get cheese, blow out candle, put the cheese on the trap and set it. Drop the trap, go down and wait. Go up and get mouse.

Stuart Green
Aughton, Nr Ormskirk.

GNOME RANGER
■ *Amiga*

There's an odd bug that rears its head when you are in the shop: give Cap any two objects that you are holding and then take the backpack. Type 'PUT (any object in the shop) IN BACKPACK'. Now do the same for any other object in the shop; you will find you will be able to get every object in Cap's shop.

After making friends with the eagle, ring the bell and ask the eagle to go into the witch's garden, get the peg, and then open the kennel door. Now go into the garden and follow the dog. You will then find something to your advantage.

Dean Elcome
Barton Le Clay, Bedford

FAERY TALE ADVENTURE
■ *Amiga*

Go northwest from your home village of Tambry. You will three snake type creatures at the water's edge. Kill them and you will be rewarded with a turtle (he will give you a shell and then ask if you would like a lift on his back). The shell is for calling the turtle if you cannot see him.

Objects and their uses:
Orbs let you see hidden doors.
Blue stones can teleport you when standing in a ring of stones.
Glass vials restore you vitality.
Green jewels let you see better at night.
Bird totems give you a birds eye view of where you are.
Magic Rings freeze attacking nasties.
Jade skulls act like 'smart' bombs

Dean Elcome
Barton Le Clay, Bedford

GAUNTLET II ■ *ST*

Find two keys and then hunt for a locked treasure chest. Press the [Help] key at the same time as you open the chest. Do a similar stunt, but this time hold down the [Insert] key. You'll be granted a whole heap of health. This works repeatedly and on any level.

Kevin Mangan
Kelvinside, Glasgow

KARATE KID II ■ *ST*

Press 'P' to advance a stage.

Michael Brown
Charlton-cum-Hardy, Manchester

RETURN TO GENESIS ■ *ST*

When the game has loaded type 'WASP.ASM', this activates the cheat mode and gives you the following extra functions:

F5 – makes your ship indestructable.
F4 – changes monitor frequency.
Control – displays program version message.

The only way to end the game once you have clocked up a high score is to select the scientist Festus and destroy your ship by pressing the space bar.

Michael Brown
Charlton-cum-Hardy, Manchester

STAR WARS ■ *ST*

Infinite shields for Domark's computer version of the classic film. Simply type the listing into ST BASIC, insert a blank (freshly formatted) disk and run the program. An AUTO folder will save to the new disk. Make sure it's the blank disk you insert and NOT the original game disk. Press the reset buttom with the blank disk in the drive. The drive will wirr for a while and then stop. Insert the Star Wars game disk and press any key.

There are two versions of ST BASIC. One written in 1985 and the other in 1987. The later version doesn't support the DEG SEG command in line 200. If you have the later version then remove this line. To check for your version simply click on ' About ST BASIC' from the Desk menu. The copyright message will display the date.

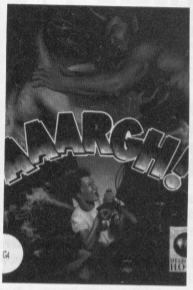
```
160 ' STAR WARS
170 ' infinite shields
180 ' by D Sanger
190 p=&h7fd00:size=128
200 def seg=0 : rem ONLY FOR OLD BASIC
210 for a=0 to size-1 step 2
220 read b$:poke p+a,val("&H"+b$)
230 next a
240 bsave "auto\starcrt.prg",p,size
250 rem
260 data 601A,0000,0064,0000,0000,0000,0000,0000
270 data 0000,0000,0000,0000,0000,0000,4FF8,4000
280 data 4878,0200,487A,FEF6,4267,3F3C,004A,4E41
290 data 3F3C,0007,4E41,4267,487A,0030,3F3C,004E
300 data 4E41,42A7,42A7,487A,0026,2F3C,004B,0003
310 data 4E41,2E40,323C,4E71,204F,D1FC,0000,A7B2
320 data 30C1,30C1,2F00,4EEF,0104,2A2E,2A00,6175
330 data 746F,5C73,7461,7277,6172,732E,7072,6700
```

D Sanger
Southall

AAARGH! ■ *Amiga*

Don't breath fire or jump when fighting for the egg on the bonus level: just keep punching, you'll never lose that way.

R Ackroyd
Bradford, Yorkshire



DEFENDER OF THE CROWN ■ *Amiga*

Hold down the [K] key until the game has loaded. This neat trick provides you with 1024 knights in your home army and a further 1024 in your campaign army. Your sword fighting will also greatly improve; opponents can usually be dispensed with by the second slice of the blade.

Rahim Chitalya
Hornsey, London

BONECRUNCHER ■ *Amiga*

Here are some passwords that might help:

Golemstench
Scarab
Web of Death
Underground
Deathchamber
Golems Cave
Hornslut
Slimehole
Bloodsmell
Bonepowder
Nightmare
Monsterbreed
Thunderstorm
Creepy Cave
Liquidation
Megahaze
Strata Gem

Dean Elcome
Barton Le Clay, Bedford

This month's winners:

R Ackroyd for his tips on Obliterator, AAARGH! and the Three Stooges. He wins the best of the Amiga titles reviewed in this issue.

Stuart Green for the solution to Jinxter (half of which is printed this month; the final installment next issue) and his tips on Enduro Racer. He scoops the cream of the ST titles reviewed this issue.

GAIN A GAGGLE OF GAMES

Tips, pokes and game-busting ploys. Yes. We want the lot. If you've discovered a secret password, written a poke, mapped a game, completed an adventure, found out ways of getting high scores or know of any method that lets you win (by foul means preferably) then send us details. By doing so you could win a collection of the best new games for your machine, ST or Amiga.

Interested? Well stop gawping. Get your game busters to us. Send them to Gamebusters, ST/Amiga Format, 4 Queen Street, Bath, BA1 1EJ. Please state whether tips are for ST or Amiga. Try and make tips short and snappy – we want to know how to complete a game, not a tome on house-training armadillos (I have the three-volume edition of J. Buttocks 1914 treatise, The Dry Armadillo, already - Ed). Pokes can be any length as they will be included on the cover disk rather than printed. If a poke is very long please send on a 3.5" disk, and also enclose a jiffy bag and return postage if you want it back.

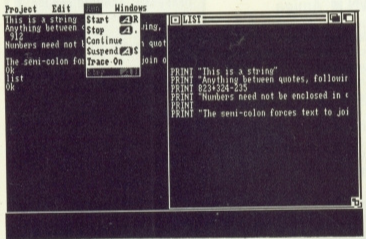
PROGRAMMING

LEARN BASIC

Does BASIC baffle you? Do you want to learn the lingo? Have you the stamina to start? For more alliterations and more on BASIC let Richard Monteiro do the talking.

For all the pressures of more modern and sophisticated computer languages, BASIC continues to be the most popular and widely used of any in the world. One criticism which is always levelled against it, however, is that there are so many dialects that no two versions are remotely compatible. This isn't quite the case, however. The fact is, Amiga BASIC and HiSoft's Power BASIC (trial version supplied on this month's cover disk) share enough syntax to make this guide-to-BASIC quite feasable. Both versions are based on Microsoft BASIC; Amiga BASIC was actually written by Microsoft and Power BASIC, which takes its roots from ST BASIC, directly compiles Microsoft's PC QuickBASIC.

If you're after tips on accessing the kernal ROM or GEM VDI, you're reading the wrong pages. This article assumes you're a complete beginner. Any listings or commands printed througout this series will work with either Amiga BASIC or Power BASIC (the version supplied on this month's cover disk or the fully-blown version available from HiSoft). Boxes elsewhere on these pages describe the finer details of writing and excuting programs.



■ *LIST and BASIC windows can be selected either by placing the pointer inside the appropriate window and clicking or by selecting Windows from the menu bar.*

AMIGA BASIC: GETTING GOING

If you've never used Amiga BASIC before, here's what you do. Reset the computer and insert your Workbench disk into a drive. Once the Workbench has loaded, replace the Workbench disk with the Amiga Extras or Amiga BASIC disk. An Extras disk icon appears. Double click on this icon and the contents of the disk eventually appears. Double click on the AmigaBASIC icon.

Amiga BASIC is now ready to use. Type the following two lines exactly as you see them:

```
INPUT "Please enter your name";a$
PRINT "As you can see, ";a$;", a program."
```

Make sure you type exactly what's printed above; take care with punctuation and spacing. Press [Return] at the end of each line.

Move the pointer (arrow) so that it rests inside the window titled BASIC and click the left mouse button. A thin cursor appears; type RUN [Return] (the large key embossed with a large angled arrow). The two-line program runs and you're asked to enter your name – do so. When the program has finished you're left with a large BASIC window. To get back to the editor (known as the LIST window), type LIST and press [Return].

That's the procedure for creating and running BASIC programs. Now follow the rest of the series to discover what the commands do and how you can use them within your own programs.

Print and be damned

Whenever you use a piece of software – be it a game, word processor or programming language – you generally find your way around by following on-screen prompts or messages. These messages usually ask you to press certain keys or type in phrases. The computer can then decide how to interpret what you've written. This is also how BASIC works.

Two commands understood by nearly all versions of BASIC are PRINT and INPUT. PRINT tells the micro to display words or numbers on the screen at your command. INPUT is used to pause execution of a program to allow who ever's using it to enter text or a value. Read through whichever panel refers to your micro and follow the instructions to enter and run the simple two line program described there. This is an example of what you can do with simple program instructions in BASIC. Let's take them step by step. First clear the program you've just run. Select the New option from the File menu in Power BASIC or type NEW in the BASIC window in AmigaBASIC.

Now type:

```
PRINT "A" [Return]
```

Note that the word 'Return' inside the square brackets, and the brackets themselves, aren't meant to be typed in. They are instructions intended for you. Hence [Return] means press the key marked Return (or with an angled arrow) after keying in the line.

Run the program as you did the previous one. A capitol 'A' is displayed towards the top-left of your screen. Replace the 'A' with other characters: 5, &, _, ?, H and so on, and rerun the program. Don't be frightened to experiment – you can't do yourself or the computer any harm. Note that the speech marks aren't printed; only what's held between them. Words and phrases of this kind are known as 'strings' (think of them as strings of characters). If you try printing a letter without putting speech marks round it, you get an unexpected result. Try it and then read the panel on variables to find out what happened.

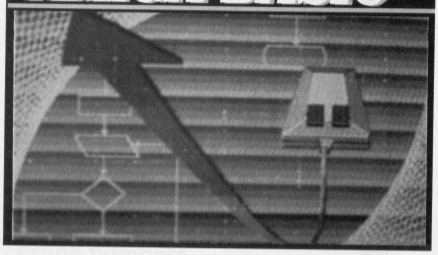
Here are a few example strings:

```
PRINT "ABCDEFGHI"

PRINT "1234"

PRINT "HELLO THERE"
```

Character building

Any character you can type from the keyboard can be sent to the screen using the PRINT command. However, not all can be conveniently typed in a PRINT command between speech marks. The obvious examples are the speech mark (double quote) characters themselves. The double quote symbol, and indeed any other character, can easily be printed, however, if its ASCII value is known. ASCII (the American Standard Code for Inforamtion Interchange) is a standard code for handling letters and numbers within a computer. The standard part starts at 0 and ends at 127 and codes from zero to 31 are used for

AMIGA BASIC



special characters which control things like screen colour and cursor position – forget about these for the moment. 32 is the first alphanumeric character code; it represents a space. Next is 33 which represents the exclamation mark, and code 34 is the one we are interested in as it signifies the double quote.

To print characters using their ASCII codes you must use a new command, CHR$ (meaning 'The CHaRacter whose value is). For instance,

```
PRINT CHR$(34)
```

If you run that line, a quote mark will appear on screen. The number in brackets refers to an ASCII code. Experiment with other codes. If you're interested, both Amiga and ST BASIC instruction manuals contain an appendix with a list of ASCII codes and relevant characters: appendix A and E repectively.

Things to do with strings

With computers being used more and more for manipulating text rather than numbers, it's perhaps not surprising that BASIC provides a regular cats cradle of different ways of fiddling with strings. As well as the CHR$ function, there are all manner of others for reproducing strings, splitting them and putting them back together again.

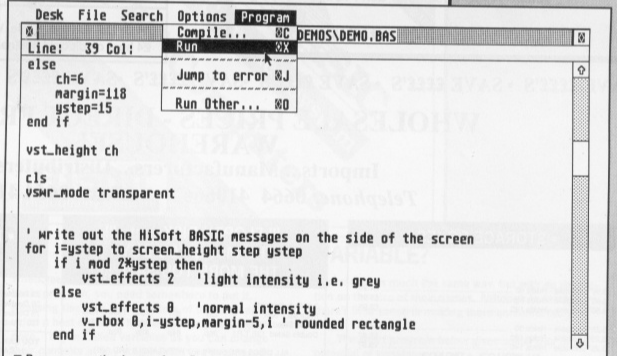
If you want to extract one or more characters from any point in an existing string, all you need is a touch of MID$. It's use is easiest to explain with an example. Suppose you want to extract the word 'MAD' from the word 'ARMADILLO', to describe the obsession some journalists have for this lovable little South American creature. the command would be `MID$("ARMADILLO",3,3)`. The string ARMADILLO has to be in speech marks, though you could use a string variable in its place (see the panel on variables to find out what they are and how to use them). The two numbers following it, which are separated from it and each other by commas, tell BASIC where the extraction should start (in this case the third character from the left) and how many characters to take (3: M, A and D). MID$ *copies* the characters, usually to a string variable, leaving the original string untouched. If you wanted to assign MAD to the variable JOURNALIST$, the full command would be `JOURNALIST$=MID$("ARMADILLO",3,3)`.

There are two commands associated to MAD$, which are in effect special cases of it. `LEFT$("TAPIR",3)` would return the string TAP. As the command name suggests, LEFT$ copies a specified number of characters from another string, starting from the left. The number in brackets determines how many. Similarly `RIGHT$("PLATYPUS",3)` would return PUS, by copying the last three characters in PLATYPUS. The function starts counting from the right (bet that was a surprise!) but the extract still reads from left to right.

`LOADSADOLLARS$ = STRING$("$",17)` builds a string consisting of 17 dollar symbols. If you need to repeat any character (and this could include graphics characters), STRING$ does just that. Put the character (which again may be the con-

ST BASIC TOO

Users of Atari's bundled ST BASIC will feel at home with HiSoft's Power BASIC: the commands are identical. This tutorial, therefore, applies to BASICs Amiga, Power and ST. Alright, if you want to be pernickety about it, Personal and QuickBASIC users can also use this tutorial. ST BASIC requires line numbers – Amiga BASIC and Power BASIC don't – so if you're going to follow this article with ST BASIC in mind, do remember to include line numbers at the start of each line.



■ *Program creation is easy from Power BASIC: position the cursor anywhere in the window and type then choose RUN from the Program menu to execute it.*

POWER BASIC: GETTING GOING

Start from the Desktop, displaying either the files on this month's cover disk (a copy of it, of course!), or a copy of the HiSoft master disk if you have the full version. If you're using the cover disk version, double click on the CLICK_ME.PRG file icon and select the appropriate item from the menu (see DISK EXTRA pages for further information). For the full version double click on the PBASIC.PRG file icon. Power BASIC loads and a flashing square (the cursor) appears after a few seconds. You're ready to roll.

Try typing the following. Don't worry if it doesn't make sense yet, the tutorial will put that right:

```
INPUT "Please enter your name";a$
PRINT "As you can see, ";a$;", a program."
```

Make sure you type exactly what's printed above; take care with punctuation and spacing. Press [Return] at the end of each line.

Move the pointer to the Program option in the menu bar and, after the menu drops down, click on Run. After a few seconds the two-line program runs and you're asked to type your name. Do so, remembering to press [Return] at the end. When the program's finished BASIC tells you and invites a keypress. Press any key to return to the editor (where you previously typed in the program).

That's the procedure for creating and running BASIC programs. Now follow the rest of the series to discover what the commands do and how you can use them within your own programs.

tents of a string variable) and the number of repetitions inside the brackets and away you go. You could do this with the space character as well, but there's a custom-made function in BASIC for this. `BLANK$=SPACE$(32)` defines a string variable BLANK$ containing 32 spaces. Useful for blanking areas of the screen.

One last function which is particularly useful when trying to match text input by the user of the program with other text, perhaps held in a variable, is UCASE$. The function converts any lower case letters to upper case so producing POSTMAN PAT from Postman Pat, FAHRENHEIT 451 from Fahrenheit 451 and 101 DALMATIANS! from 101 Dalmatians! As with all the other string functions, you enclose the string in brackets and speech marks.

Prime numbers

Computers are great for solving arithmetic problems (Hence the term 'Computer'!, Ed), but they use slightly different notation for some of their symbols. + and – are still used for addition and subtraction, but BASIC uses * for multiply and / for division:

```
PRINT 8*45
PRINT 1524/3
PRINT 23+67-18
```

Like numbers, strings can be added together. For instance, if you have the two strings "SUN" and "DAY", You could combine the two with the expression:

```
PRINT "SUN"+"DAY"
```

or `PRINT "SUN";"DAY"`

or even with the two-line routine:

```
PRINT "SUN"; <return>
PRINT "DAY" <return>
```

By now you should have realised that the semi-colon's function is a little more specialised. It ensures that the next item printed appears directly after the previous one.

Case for input

You've now discovered how to make the computer display characters on the screen, but you can also pursuade a program to wait for information from the user.

The INPUT command is usually followed by two parameters, a prompt string and the name of a variable (either string or numeric). When an INPUT statement is encountered, the program prints a question mark to indicate that it's waiting for data. Any prompt string is printed before the question mark:

```
INPUT "Please enter you name?";a$
```

Running the line above causes the message 'Please enter your name?' to appear. The computer will hold that display until you type something in and press [Return] (you don't actually have to enter anything; [Return on its own will do). The 'aS' following the semi-colon is a string variable. Variables are discussed in one of the panels, but for now accept that a$ will hold your input. To test this add a second line to the above:

```
PRINT a$
```

Numeric INPUTs work in much the same way as string INPUTs; the difference being that a numeric INPUT only accepts numbers. Attempts at entering anything else will result in an error message. Run the program below and try entering a number. Run it again and use a word instead.

```
INPUT "Please enter age";age <return>
PRINT age <return>
```

A comma can be used in place of the semi-colon to supress the question mark. For example, the statement INPUT "Enter a string, any string ",a$ will print the prompt with no question mark. There's no restriction to the number of variables following a string prompt: INPUT "Enter day and date";dy,dt and INPUT "Names";a$,b$,c$ are permissible. Responding to INPUT with too many or too few items will cause an error.

Next month we'll be looking at branches and loops, in fact whole shrubberies of new BASIC constructions.

WHAT'S IN A VARIABLE?

When you want to retain a string or a value within a basic program, you need somewhere to put it. Realising this fact, the inventors of the language provided a host of handy little boxes for just this purpose. They're called variables as you can change their contents at any stage. Once you've entered something into a variable, though it will stay there until you specifically change it, or the program finishes. Variables are addressed by name (like having a label on the box) and come in two types: numeric and string. A numeric variable can only be filled with a number. A string variable can only be assigned a character string. All obvious stuff. Variables can be given values at any point in a program.

Typical examples are:

```
LET a=123
LET a$="A"
animal$="armadillo"
time=6.45
```

Notice that some expressions start with LET; the LET command is obsolete these days but it may help you to imagine it preceeding assignment statements. Amiga BASIC variable names may be anything up to 40 characters in length. The names are not case-sensitive which, put simply, means variables like lives, Lives and LIVES are treated as the same thing. Characters allowed in a variable name include letters, numbers and decimal points. Power BASIC variables are treated in much the same way, but with no restriction on the size of their names. Although in reality, there's little sense in making them uncomfortably long.

The short program below gives some idea of the potential of variables:

```
firstname$="Agnes"
surname$="Armadillo"
address$="Future Publishing Armadillary, 4
Queen St, Bath"
county$="AVON"
postcode$="BA1 1EJ"
telephone$="0225 446034"
PRINT firstname$;" ";surname$
PRINT address$;" ";county$", ";postcode$
PRINT telephone$
```

See if you can work out what the program below does. It's using a FOR NEXT loop; something you'll be introduced next time. For now just gaze in awe at the power of PRINT, variables and loops:

```
a$="ASCII "
FOR T=32 TO 127
PRINT a$;"code: ";T;a$;"character:
";CHR$(T)
NEXT T
```

STRING SIZE

Big may be beautiful, but Amiga BASIC and Power BASIC take this concept a byte too far. Amiga BASIC strings can be anything up to 32k in size; that's 32768 characters (room enough for all the text in this part of LEARN BASIC) With Power BASIC we really are talking silly numbers: 16,777,215 characters is the maximum you'll be able to fit in a string. In data terms, that's the equivalent of 32 packed issues of ST/Amiga Format. That's all very well, but you'd never fit the string in memory or even on a 15Meg hard disk

REVIEW

DEVPAC

For any machine code programming, a reliable assembler, disassembler and monitor is essential. Richard Monteiro assembles the facts on HiSoft's new offerings for ST and Amiga.

£59.95 ■ ST (v2.0) and Amiga (v1.2) ■ HiSoft, The Old School, Greenfield, Bedford, MK45 5DE (0525 718181)

Look at top games, past and present, like Starglider and Virus – what makes them so special? Rapid action and silky-smooth animation, that's what. But it's only with complete control of the computer – the sort of control offered by Assembler rather than high level languages like C and Pascal – that these things are possible. Of course, it's not only games that benefit; DTPs, word processors and graphic packages are a few of the applications that gain from compact machine code capable of catapulting data around memory at speed.

Bedford-based HiSoft have been a major force in microcomputer programming languages ever since early Sinclair Spectrum days; Devpac – which allows you to create assembly language programs, assemble them to machine-code and debug the code when it doesn't work – is one such program that has mutated through various computer formats. It's available for the Amiga as Version 1.2 and for the ST in recently-completed Version 2 format. If this paragraph makes as much sense as Roy Hattersley on a good day, then you need the *Syntax buster* box.

THE AMIGA DIFFERENCE

Devpac Amiga can only be used from the CLI, but if you're technical enough to be programming in assembler this won't bother you. The editor works in much the same way as the ST version except for preferences, which are specified at the same time as loading the editor. For example, you might use GENAM –S200 to load the editor with a 200k workspace.

Two types of 68000 programming are possible: position-independent (relocatable) and position-dependent. Position-dependent code is possible despite the fact that you never know where your program will load until it executes.

Linker directives allow you to specify the type of program hunk: code, data or BSS which can be sent to either public, fast or chip memory. The linker is, incidentally, the public domain offering BLINK.

Due to the Amiga's multi-tasking capabilities, a monitor is a tricky program to implement; HiSoft have made a reasonable attempt. Once a program (better known as a task) is in memory, the Devpac monitor suspends it. If you wish to single step a task then this is the correct state for the task to be in. Other operations require the task to be executing. Only the loaded task can be investigated by Devpac. Most machine code programs can be hacked without any problem, although system programs pose problems as many of them rely on undocumented registers and memory areas.

Source and code

There are several stages to pass through before ending up with an executable 68000 machine code program. First write the assembler source code in mnemonic form. You can use a text editor to write source programs; any editor or word processor capable of ASCII output will do, although the editor HiSoft provide is the best as it allows you to assemble files in situ.

Along with standard cursor-movement control, HiSoft's editor lets you move to the top or bottom of a file quickly, delete (and undelete) text, search and replace strings, perform block operations (copy, cut, paste, print, save) and – of course – load, save and merge files. Functions are accessible via the keyboard and standard WIMP menus.

Text files are memory resident which makes for fast editing, but does mean that on the ST520 and A500 you can only edit text files of, at most, 300K. Not a lot when you consider that 300K of source can compile to as little as 50K of code. That said, if you are serious about writing a block-busting game or an operating system, it's unlikely you'll use a 1/2 Mbyte machine.

Typical source syntax consists of

REFERENCE GUIDES

Want to take the plunge and learn 68000 assembler? Glentop's First Steps in 68000 Assembly Language (ISBN 1-85181-081-1) could prove just what you're looking for.

There are several guides for the Amiga, available from Addison Wesley, which are necessary for heavy duty programming: Intuition Reference Manual, Rom Kernel Reference Manual, Hardware Reference Manual. Unfortunately each costs around £30.

On the ST side, the Concise Atari ST 68000 Programmer's Reference Guide (ISBN 1-85181-172-9) from Glentop and the Anatomy of the Atari ST (ISBN 0-948015-56X) published by 1st Publishing at £12.95 are recommended.

IMPROVEMENTS TO ST VERSION 1.2

The most obvious difference between Devpac Version 2 and earlier versions of Devpac ST, and indeed the current version of Devpac Amiga, is that complete program development can take place from one core program: the assembler can assemble direct to memory and the code can be debugged directly or run without the need for any disk accessing.

Subtle editing improvements include faster display speeds, lines up to 240 characters in length, save-preferences option and paste mode.

Assembly is faster, has extended nesting ability (macros as deep as memory permits and IFs to 64,000 deep!) and has extra assembler directives. For instance, REG produces a symbolic register list and OPT can have a wealth of new parameters following it: O optimises your code in case you've used long jumps where short ones would have done; T checks certain types of programming expression; X for extended debugging (which allows symbols of up to 22 significant characters).

The manual has undergone a hefty shakeup; page count is now 200, sections on interfacing to the operating system and creating desktop accessories have been included, and overall it's tidier. But still no glossary or index.

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label, mnemonic, operand and comment. For instance,

Label	Mnemonic	Operand	Comment
start	MOVE.L	D0,(A0)+	store result

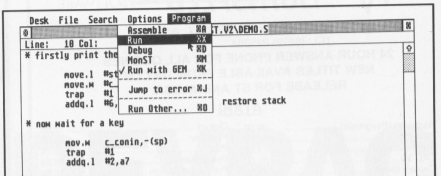
is acceptable. Each field, if used, must be separated by one or more space or tab characters. Label names can be 16 characters in length and are case-sensitive (start is different from Start is different from START). Mnemonics and operands can be written in either upper or lower case.

Assembler directives, which is a hackers way of saying instructions meant for the assembler, can be included within source files. These instructions are not usually turned into opcodes; instead they tell the assembler to perform certain actions at assembly time. For example, OPT P+ checks that all code is position-independent, NOLIST prevents any listing appearing during assembly, and IFEQ and IFNE are used for conditional assembly.

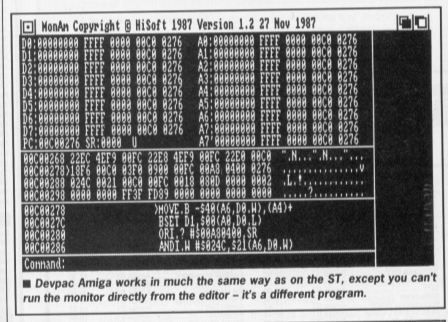
From the editor you can assemble the source file currently in memory at the click of a button. This generates the binary bytes (machine code) which is either executable or linkable (can be joined with other files created with Devpac or high level languages, to produce one large executable file). It is possible to assemble or compile a file without generating any machine code – useful for testing a source file for errors.

Machine code programs – be it those created with Devpac or those from other sources – can be debugged or simply inspected by using the supplied monitor. Code can be disassembled, examined, executed at various speeds and breakpoints inserted. The monitor is 'symbolic' which means you can look at Devpac-created programs complete with original labels – makes debugging much easier.

The monitor uses its own screen for presenting register details and so on which means the display of your program is left intact.



■ *Editing, assembling, debugging and even program execution can be done from the same place within the ST Devpac*



■ *Devpac Amiga works in much the same way as on the ST, except you can't run the monitor directly from the editor – it's a different program.*

HUMBLE ORIGINS

How do you think such a powerful programming package as Devpac was put together? Created on a £10,000 Sun and downloaded to either ST or Amiga? Far from it. A Sinclair QL – which is nothing more than a glorified eight-bit computer, and has nothing going for it apart from the fact that Bob Wade owns one – was used to develop it all. The resulting code was uploaded to an ST via a serial link.

ST

features 0 1 2 3 4 5
performance 0 1 2 3 4 5
ease of use 0 1 2 3 4 5
manuals 0 1 2 3 4 5
format value 0 1 2 3 4 5

for

- Integrated editor, assembler and debugger
- Code optimising possible
- Reasonable information on GEM calls
- Programs can be assembled to memory and run

against

- Manual has no glossary or index
- 520s limited to 300K source files

AMIGA

features 0 1 2 3 4 5
performance 0 1 2 3 4 5
ease of use 0 1 2 3 4 5
manuals 0 1 2 3 4 5
format value 0 1 2 3 4 5

for

- Powerful conditional-assembly options
- Motorola-style macros supported
- Any errors during assembly are highlighted by cursor
- Pocket 68000 reference guide included

against

- Poor manual
- Little info on accessing operating system
- Lacks the extras of the ST version, 2.0

SYNTAX BUSTERS

If this review leaves you floundering then either use your Intuition or read the following GEMs (that's enough WIMP puns – Ed):

***ASSEMBLER** – can mean the program that creates executable machine code programs from source code or the programming language itself.*
***BREAKPOINT** – a debugging aid that stops a program at a particular point and displays status information.*
***BYTE** – eight bits; any number from zero to 255.*
***DISASSEMBLER** – displays machine code as assembler.*
***HEXADECIMAL** – base 16 counting system used for assembly programming.*
***LINKER** – joins several pieces of machine code together to produce one executable file.*
***LONGWORD** – 32 bits.*
***MACRO** – a sequence of instructions represented by a single name.*
***MNEMONICS** – near-English commands representing 68000 assembler instructions.*
***MONITOR** – used for debugging, tracing and hacking machine programs.*
***OBJECT CODE** – name for the machine code file created after assembly.*
***REGISTERS** – can be thought of as fast on-chip memory.*
***SOURCE CODE** – the mnemonics, opcodes and labels making up an assembly language file.*
***WORD** – 16 bits.*
***ARMADILLO** – small, long-nosed animal that hides in corners of Format.*

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TIPS

DESKTOP

Two pages of tips, hints, wrinkles and dodges exclusively for ST owners. Read all the bits the manuals try to hide.

Fingers on the buttons

If you have several windows on screen – say for two or more drives, only one can be active at once (indicated by a highlighted border). If you want to run a program held in an inactive window, the normal procedure is to click once on that window to activate it and to double click on the appropriate file icon to run the program. A much simpler method is to hold the right mouse button down while double clicking on the required file icon with the left button. In then doesn't matter if the window is currently inactive.

R Burrows
Weston-Super-Mare, Avon

Doctoring INFo

Providing you own a word processor or text editor (in fact, ST BASIC's editor will do), it is possible to load the DESKTOP.INF file into the editor and tune it to your needs. DESKTOP.INF is the file saved to disk when you select Save Desktop from the Options menu.

Standard DESKTOP.INF files contain information for displaying one TRASH icon and two DRIVE icons (A and B). You can add further TRASH cans or other icons by adding to the information already contained in the file. For instance, within the file there is a line much like:

`#T 00 03 02 FF TRASH@ @`

where:

`T` is a letter describing an icon's function (M for disk drive and T for trash)
`00` is the x co-ordinate of an icon
`03` is the y co-ordinate of an icon
`02` is the type of icon to be displayed (00 for floppy disk, 01 for Folder, 02 for Trash, 03 for program file, 04 for data file)
`FF` is a marker. Anything that follows this will appear as text under a particular icon
`@ @` is an end of text marker

It's amusing to have 10 or 15 TRASH icons on the screen at once – not at all useful, but amusing. This can be achieved by repeating the line above as many times as required. If you don't change the co-ordinates of the icons each time it is repeated, all of them will lie in the same place. Save your changes and re-boot your system. Your screen should fill with dustbins. It is possible to do the same with other icons.

If you have a second drive attached and wish control to pass to drive B on switch on, then try the following modification on the line `#W 00 00 0A 01 1E 17 08 A:\*.*@:`. Change `A:\*.*@` to `B:\*.*@`. This works if you ensure, on boot up, that drive A contains the modified DESKTOP.INF file.

Lee Harris
Kingsthorpe, Northampton

Get lost

Last month we described how to install applications so that clicking on a data file starts up the application and loads itself into that program. That's all well and good, but what if you want to send the contents of a data file to the screen or printer and you've already installed its application? Simple, you can't. Not, that is, unless you erase the DESKTOP.INF file or change the data file's filetype.

The procedure for removing the DESKTOP.INF file is simple: click once on the DESKTOP.INF icon and drag it to the TRASH icon. Reset the computer and you can now send the contents of the file to screen or printer. This is a drastic measure and not normally recommended unless you have no further use for the DESKTOP.INF file.

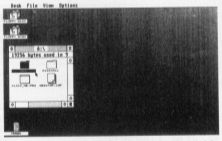
Your second option is to rename the data file: click once on its icon to highlight it and select View Info from the File menu. Press [Delete] three times and give the file a .TMP (for temporary) filetype. Click on the OK button to close the info window. Now when you double click on the .TMP file, you'll be able to send its contents to screen or printer. Don't forget to rename it back once you've finished.

Running accessories

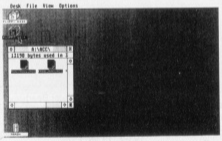
Several readers have had trouble getting the desktop accessories from our cover disks to work correctly. Here's a step by step guide to help you install the accessories found on our disks, but first an explanation of what accessories are:

Unlike standard .PRG or .TOS

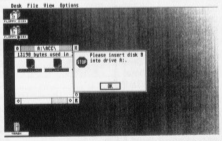
INSTALLING ACCESSORIES – STEP BY STEP



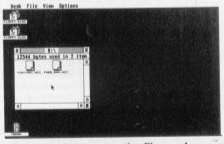
(1) Double-click on the accessories folder



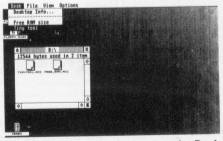
(2) Drag all the .ACC files on to drive B



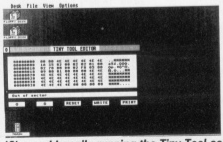
(3) You'll be asked to "insert disk B". Put in the disk for copying onto, and click OK



(4) After a few swaps, the files end up on B



(5) The accessories are now on the Desk menu



(6) ...and happily running the Tiny Tool accessory.

files, accessories (discernible by their .ACC extensions) can't be clicked and run. Instead, GEM must be given instructions to load them at start up (this is explained later). The files themselves must be in the root or main directory so GEM can find them. Once installed, an accessory is run by pulling down the Desk menu and clicking on the accessory's name. Up to six accessories can be held in memory at once – but they take up memory all the time the ST's running, so only install those you really need.

The first step is to format a fresh disk or ensure you've got a disk with plenty of space (see the 'Beginner's Corner' box). Now insert the cover disk (or whichever disk you want to copy accessories *from*) and double click on the drive A icon. If you can't see the ACC folder, drag the scroll bars until you can. Double click on the ACC folder and all the accessories should spring to view. Once you've selected the accessories you want to copy, drag them to the drive B icon. GEM then copies the files. At various stages you're asked to insert disk A or disk B – do so, but don't confuse them. To be on the safe side, write protect the disk you're copying from.

When the copying is finished, insert the disk you copied to into drive A and reset the ST by pressing the button at the back. Once the machine restarts, the Desktop reappears and you can run the newly installed accessories by selecting them from the Desk menu.

MONEY FOR NOTHING

Well, that's not altogether true – but almost. We want your tips on anything and Everything ST-related. Be it tips on hardware mods, getting the best out of software, low-level ROM calls or simply how to use the Desktop to better effect, we need them. In return, the star tipster each month wins £30. Now that can't be bad: money for your discoveries.

Rush your GEMs (ho, ho!) to Desktop, ST Amiga Format, 4 Queen Street, Bath, BA1 1EJ. Label your letters clearly; Future publishes several magazine each month, and we certainly wouldn't want your tips reaching the eyes of prospective Diesel Car buyers.

This month's £30 prize winner is Lee Harris from Northampton, for his devilish info on Desktop Info. Could it be you next time?

BEGINNER'S CORNER

Beginner's Corner provides more detailed information on aspects of the Desktop which may seem obvious once you know them, but can be very puzzling until you do.

FORMATTING DISKS

This operation sets up a series of magnetic 'markers' on the disk so that the ST can find its way around. Any new disk must be formatted before files can be saved to or read from it.

To try this out, pick either a brand new disk which has never been formatted, or a disk with no valuable programs or data on it. Formatting erases any information already on the disk, so make sure you have the right one. Insert the disk into drive A, click once on the Drive A icon to highlight it and select Format from the File menu.

A message warning you that you are about to erase the contents of the disk appears. Click on OK if you're absolutely sure you don't mind losing this data. A box appears with various formatting options: Single sided, Double sided, Format, Exit. For now just click on Format and a bar graph shows the increasing proportion of the disk that's been formatted. When it's finished another window shows the amount of space available on the disk. Click on OK and the formatting options window appears again. Click on Exit. The disk has been formatted.

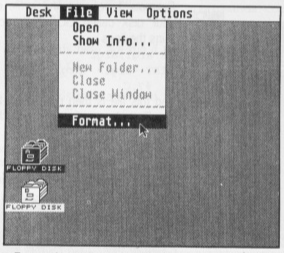
The other formatting options, Single sided and Double sided, refer to the number of drive heads present in the disk drive. Early 520STFMs (pre-Summer promotion models) have single sided drives; all others have double sided ones. Double sided drives can store twice as much information as single sided drives: select Double sided from the formatting-options box if you're sure your drive is double sided.

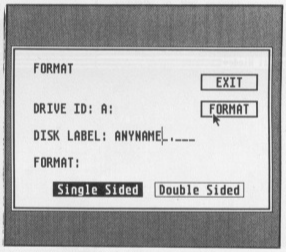
WINDOWS

It is possible to call up a window by inserting a disk in the drive and double clicking on a drive icon. The window shows information on files and folders stored on the disk.

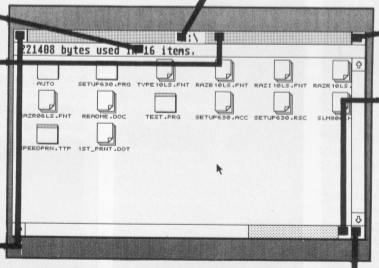
COPYING FILES

Select the files you want to copy by holding down [Shift] and clicking once on each file's icon to highlight it. Release [Shift], position the pointer over any one of the selected icons and holding the left mouse button down, drag them all with the mouse to the destination window or drive icon.





■ *Formatting a disk... (1), Choose Format from the File menu. (2) Pick a label if you want and choose single sided (if you've got an old 520ST) or double sided (if it is a 1040, Mega, or new 520 with the bigger drive).*



■ *This bar tells you how many files are present and how much free space is left on the disk.*

■ *The disk identifier tells you which drive and directory (folder) you've accessed.*

■ *Single clicking on this icon forces the window to full-size.*

■ *The whole window can be moved in any direction by holding the left button over this shaded bar and dragging with the mouse.*

■ *When you're dealing with small windows, it may not be possible to see the complete contents of the disk. These hidden areas may be brought into view by clicking on the scroll arrows or dragging the scroll bars. The scroll bars are generally used for moving greater distances.*

■ *Click this and the window disappears.*

A window can occupy any amount of space; anything from a few characters to the whole screen. To change the size of a window use the size box icon. Pressing the left mouse button over this icon and drag the pointer in any direction to change the shape of the window. Let go of the button when you are satisfied with the window's shape.

WORKBENCH

TIPS

The secret life of the Amiga exposed! Read these pages and learn more about your computer than... well, than somebody who doesn't read them. Every month we're giving £30 prizes to the best tips – Michael Saunby of Camberley and Andrew Rispoli of Barnet scoop the jackpot this time with their ingenious CLI and Deluxe Paint tips.

By any other name

The Amiga's CLI is notorious for being verbose – command lines can be 40 or 50 characters long quite easily, so the chances of making a typing mistake are very high.

It would be very handy to be able to define a shorter 'alias' for these long commands. This technique allows you to do just that.

1) Create a file called ALIAS (using ED, for instance) looking like this:

```
.K alias/a,command/a,opt1
   ,opt2,opt3
.BRA {
.KET }
echo >s:{alias} ".K
   arg1,arg2*n{command}
   <arg1> <arg2> {opt1}
   {opt2} {opt3}"
echo "{alias} is now an
   alias for {command}
   {opt1} {opt2} {opt3}"
```

Here are two examples of aliases:

1) You want to list all your C program files, which end in .C. The full command would be `LIST PAT #?.C`. Instead, first type

```
EXECUTE ALIAS LIC LIST PAT
   #?.C
```

Now LIC is defined as an alias for LIST PAT #?.C. Just type

```
EXECUTE LIC
```

and all .C files in the current directory will be shown. Typing EXECUTE LIC SOURCE would list all the .C files in your SOURCE directory.

2) You want to format disks from the CLI in any drive, naming them 'Empty'. Set up an alias with

```
EXECUTE ALIAS FMT SYS:SYS-
   TEM/FORMAT NAME EMPTY
```

This sets FMT up as your abbreviated alias.

```
EXECUTE FMT DRIVE DF2:
```

now formats a disk in drive DF2: with name 'Empty'.

What is happening is that the ALIAS command file writes the alias definition to a new command file, which is then run with the execute command. If you follow Example 1 you will find a file on your disk called LIC which contains the lines

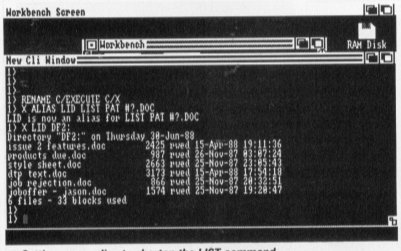
```
.K arg1,arg2
LIST <arg1> <arg2> PAT
   #?.C
```

and this file is then processed by the Execute command to do the hard work.

To make aliases more convenient, you should rename the EXECUTE command to be something shorter – say just X.To do this, simply go into the C directory of your boot disk and rename the EXECUTE file as X. Now just typing `X LIC` would do example 1's file list for you.

As it stands, the alias command file here only allows you a maximum of three arguments to the command when you define the alias (PAT and #?.C are both arguments in example 1), and two more when you run it (SOURCE is an extra argument in example 1). You can increase these if you like by adding more {opt}s or <arg>s respectively in the ALIAS command file.

To make full use of this tech-



■ *Setting up an alias to shorten the LIST command*

Channel 1081?

Here is how to turn your Amiga 1081 Monitor into a TV (untested by the Format team – proceed with care!) All you need is a video recorder.

First of all, connect the audio out from the video recorder to the audio in on the monitor, and do the same with the video out and video in lines.

Then pull down the front panel of the 1081 and press the CVBS switch. Now any output from the Video will be sent to the monitor, and because the video receives the TV signals you can watch your favourite programs on the top quality display of the 1081 monitor.

Richard Clafton
Osmondthorpe, Leeds

Deluxe Paint tips

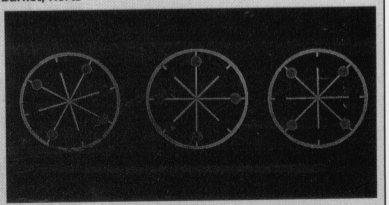
If you've ever wanted to make a simple 2-frame animation using Deluxe Paint, then try this simple tip. Draw (or load) your first image into the main screen, then swap to the spare screen by pressing J, and draw or load your second image.

Press [F10] to get rid of the menu and title bar (pressing [F10] again gets them back) and hold down J. You will see the screen flipping from frame 1 to frame 2 and back again in a rough and ready animation.

Quite a fun thing to do is is to load KingTut into both screens and then edit one of the images so that one eye is closed. When you hold J down it looks as though he's winking!

Another useful tip which makes drawing easier, ensures you draw dead straight lines in Deluxe. If you hold the [Shift] key down then the brush only moves along the X or Y axis in a straight line. The last brush movement determines the axis which is constrained.

Andrew Rispoli
Barnet, Herts



■ *Instant animations with Deluxe Paint*

nique you'll need to have your S: directory assigned to the RAM disk – if you do this, make sure you save any new definitions back to floppy disk otherwise you'll lose them when you turn off.

Michael Saunby
Camberley, Surrey

Personal prompt

The CLI's PROMPT command is quite a fun one to use for customising your Amiga system. Rather than the boring old '1>' prompt, you can get the CLI to say anything you like instead, for example 'Yes?'. Simply type

```
PROMPT "YES?"
```

If you like to have two or three CLIs on the go at once, you can arrange for the number of the current one to be displayed by inserting %N in the prompt string:

```
PROMPT "%N) Yes?"
```

to give you '1) Yes?', '2) Yes?' etc. To revert to the standard prompt, use PROMPT "%N>"

Craig Poxon
Chelmsford, Essex

Scribble shortcuts

The popular Scribble! wordprocessor, as bundled with The Works package given away with recent A500 sales, has many different keystroke shortcuts. Mice and menus are all very well, but when you're typing away it's a real pain to have to reach for the mouse and click on menus.

[Shift]↑	up one screen
[Shift]↓	down one screen
[Shift]←	beginning of document
[Shift]→	end of document
[Alt]←	beginning of line
[Alt]→	end of line

The manual's list of key commands on page 68 lists a series of [Alt] keys – these don't work! Use the right Amiga key in place of the [Alt] key and they're OK.

Users of WordStar on other micros will be pleased to learn that Scribble allows some of the same keystrokes:

[Ctrl]-V	toggle insert on/off
[Ctrl]-R,C	scroll up or down a page
[Ctrl]-Y	delete current line
[Ctrl]-T	delete to end of word
[Ctrl]-S,D,E,X	cursor one character left, right, up and down
[Ctrl]-A,F	cursor one word left or right
[Ctrl]-L	repeat search
[Ctrl]-G,H	delete character right, left

ASK answered

Anybody who has splashed out the £20-plus for the Bantam AmigaDOS manual may have noticed a frustrating omission. The C directory of the Amiga's boot disk has an ASK command file in it, but needless to say the Commodore manual doesn't explain it at all, and even the 'definitive' Bantam one omits it. Does it really exist?

Yes, is the answer. It is designed to be used in command files so that you can ask a question and then take some action depending on the answer the user gives. `ASK "Some string of text"` puts 'Some string of text' on the screen and waits for you to type Y or N (and [Return]). You can test the result with the IF command: if the answer was Y, then the WARN flag is set; if the answer was N, it is left unset. Here is a template for you to build on:

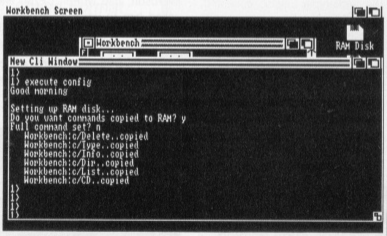
```
ASK "Type Y or N"
IF WARN
<commands here are run if the user typed Y>
ELSE
<commands here are run if the user typed N>
ENDIF
```

All the usual IF commands can be used, including NOT. So, to give a user the option to abort a command sequence:

```
ASK "Do you want to
   carry on"?
IF NOT WARN
SKIP EXIT
ENDIF
.
.(body of command file)
.
LAB EXIT
```

As an example of nesting questions and conditions, here's an example command set which you might put in your startup-sequence. It asks you if you want to set your RAM disk up to hold any CLI commands, then if you reply Yes it asks whether you want the full set or just the core commands.

```
ECHO "Good morning"
ECHO "Setting up RAM
   disk..."
ASK "Do you want com-
   mands copied to RAM?"
IF WARN
CD C
ASK "Full command set?"
IF WARN
COPY #? TO RAM:
ELSE
COPY DIR|CD|DELETE|TYPE
   |LIST|INFO TO RAM:
ENDIF
PATH RAM: ADD
CD /
```



■ *The ASK command gives you interactive Execute files*

Extending your reach

'Extended selection' is a technique of mousemanship that all Amiga users ought to understand. When you click the mouse on an icon, the colours invert to show it has been selected. You can then drag it around, copy it and so on.

If you click on another icon, the first one becomes de-selected and reverts to its normal colours. However, if you hold the [Shift] key down and click on an icon, selected icons stay selected and the new one is added into the group.

One of the main uses of this is in organising your windows neatly with the 'snapshot' Workbench function. You may have a disk whose icons are all higgledy-piggledy overlapping, and you want to arrange them in a particular order. You can drag the icons into beautiful serried ranks, but the Amiga doesn't remember the order unless you save it – if you close the window and reopen it the old mess comes back.

To save the neat version, first select all the icons in the window at once, using extended selection: click on the first one, then shift-click on all the rest in turn. Now from the 'Special' menu on the Workbench choose the Snapshot option – the positions of all the icons you had selected, ie. the lot, are saved for future reference.

Extended selection is also used when running some programs. For example, on this month's cover disk the slide show program Vilbm needs you to select all the picture files to be displayed, and then run the program. You would click on the first file to be shown, shift-click on the rest in the order they are to be displayed, then shift-double click on the Vilbm icon to run the program without undoing the previously selected files.

All at once

In the first issue of Format was a tip for making up a RAM disk full of useful utilities like DIR, CD and so on. While this was fine, it isn't necessary to copy all the files individually in the startup-sequence. You can copy more than one file at a time with a single COPY command, so a shorter startup-sequence is

```
MAKEDIR RAM:C
CD C
COPY DIR|CD|INFO|TYPE TO
   RAM:C QUIET
PATH RAM:C ADD
CD /
```

The interesting part is the third line – putting a vertical bar (next to the backspace key on the keyboard) between filenames forces AmigaDos to copy them all without the need to have a COPY line for each.

Michael Tate
Tidworth, Hants

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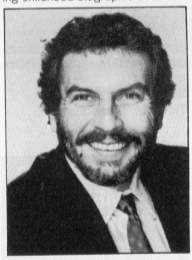
BOOKS

PORTRAITS IN SILICON

by Robert Slater
£22.50, hardback, 374 pages ■ Published by MIT Press
■ ISBN 0-262-19262-4

Computers are so much a way of life it's easy to be lulled into thinking that they've always been around. In fact, the world's very first computer program ran almost 40 years ago to the day, on June 21st 1948 at Manchester University, England.

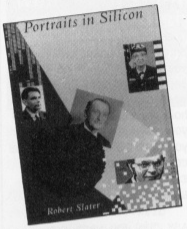
Rapid progress in the field has had one interesting side effect: unlike almost any other area of technology, virtually all the major people in the history of computers are still alive and active today. *Portraits in Silicon* is a fascinating attempt to interview those people, find out what motivated them, how they worked, and where they think computers are going. Each chapter is an interview with a specific pioneer, running to 10 pages or so. This is a good length, long enough to relate the important facts without labouring over boring childhood biographic details.



■ ***Nolan Bushnell, founder of Atari. He made his fortune with Pong, the classic video game invented in 1972. He sold out to Warner Communications (who later sold to Jack Tramiel) and went off to set up a chain of pizza parlours.***

Sitting comfortably?

The story starts with Charles Babbage, the Victorian pioneer. He built mechanical computing engines and used many of the principles 'invented' by others a hundred years later, like binary arithmetic. His assistant was Ada



Lovelace, Lord Byron's daughter – it's after her that the new programming language, Ada, is named.

Alan Turing was a brilliant mathematician who was instrumental in the British secret war effort. He built a series of 'Colossus' computers at the Bletchley Park codebreaking centre, which helped to crack the Germans' Enigma code system. The archetypal English eccentric, he would often been seen on his bicycle wearing a gas mask to ward off bouts of hay fever. He killed himself in 1954 after being convicted of homosexuality.

After these first two, the rest of the book's subjects are alive and kicking. John von Neumann devised the operating principles of the digital computer, but took up computing late in life after a career in mathematics including proposing the detonation method for the Nagasaki atom bomb. Conrad Zuse, a German, may well have built the first electronic computer, but his efforts were largely overlooked in the aftermath of Germany's defeat in World War II. John Atanasoff sued for the right to be legally credited with the invention of the computer (and yes, he was American).

William Shockley is an intriguing case. He invented the transistor in 1947 and won the 1956 physics Nobel prize for his work. However brilliant he may have been technically, he received less success in his aspirations as a politician which were based around a program of repatriating blacks and sterilizing people with low IQs. A real humanitarian!

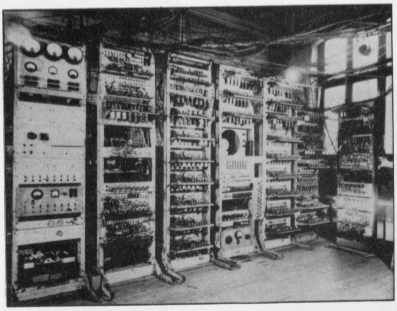
Grace Hopper is almost an institution in herself; she's 82 now, and finally retired from her post as a rear-admiral in the US navy three years ago. In 1959 she designed the COBOL language that 90% of the world's finance centres still revolve around today. She was the one to coin the term 'bug' for a program error; the story goes that one of her programs went wrong one day, and after hours puzzling over the code she discovered that an insect had fallen into the computer and shorted vital circuits!

Gary Kildall begat CP/M, the first true microcomputer operating system and arguably the most important piece of software ever – it made programs portable between different models of computer. When IBM launched their PC around 1980, they approached Bill Gates of Microsoft under the mistaken belief that his company, Microsoft, had written CP/M, and asked him to write a version for them. Deciding that discretion was the better part of honesty, Gates wrote PC-DOS for them rather than give them Kildall's phone number. Kildall wasn't amused when he found out.

It's a series of interviews giving a personal perspective on specific events and inventions. Slater, while undoubtedly well connected in the field of computing, is neither an inspiring writer nor a penetrating interviewer. He seems very ready to print egotistical assertions from his interviewees without any attempt to research or qualify their thought. For example, he allows John Atanasoff to ramble on at length about why he was the One True Begetter of the electronic computer, which is a pretty dubious assertion.

Inevitably, apart from mentioning Babbage and Turing, Portraits in Silicon is very American-biased. It's almost as though the early history of computing has been rewritten – maybe over here we're very English-biased, but it does seem that Slater is genuinely unaware that Manchester University in England built both the first electronic computer (1948) and the first all-transistor computer (1953).

Even so, Portraits in Silicon is unarguably fascinating. As a record of the personal histories of just about all the important people in the development of the computer, it's compulsive reading. And it only costs as much as one game, after all.



■ ***The Manchester Mark I, the world's first real computer – even if the Americans won't admit it.***

Curate's egg

Portraits in Silicon doesn't attempt to be a history of computing, and that is at times very frustrating.

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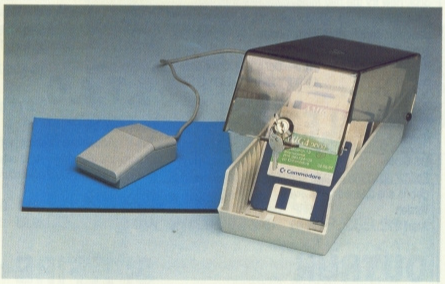

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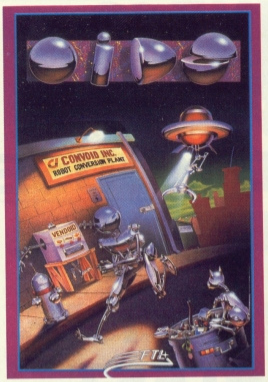

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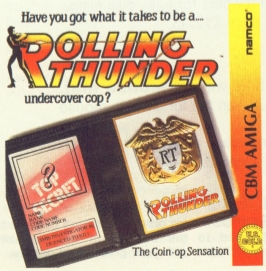

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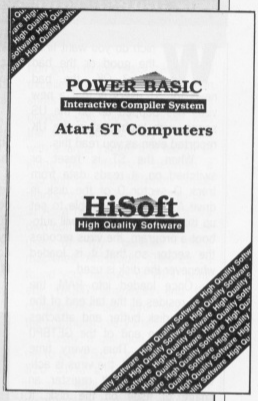

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This spreadsheet from Digita International has already established a reputation for itself on both the Amiga and the ST. We need say little more about Digicalc since not only have we reviewed it, but a demo of the ST program is included on the August issue cover disk – so here's your chance to really try before you buy!
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GOLD DUST

Steve Gold reports on the American ST and Amiga scenes, bringing news of the good (new operating systems), the bad (viruses) and the ugly (bugs) from over the Big Pond.

Which do you want first: the good or the bad news? OK, the bad news for ST users is that a new virus has popped up on the US scene, with 'sightings' in the UK reported even as you read this.

When the ST is reset or switched on, it reads data from track 0 sector 0 of the disk in drive A. Since it's possible to set up that sector so the ST will autoboot a program, the virus recodes the sector so that it is loaded whenever the disk is used.

Once loaded into RAM, the virus resides at the tail end of the system disk buffer and attaches itself to the end of the GETBP() bios function. Thus, every time GETBP() is called, the virus is activated. If it doesn't register an image of itself on the disk, it writes a copy of itself to that disk.

Every time the virus copies itself to a fresh disk, it increments a counter. After a random number of writes, the virus begins spraying random data across the root directory and FAT tables, thereby corrupting your disks.

Now comes the crafty bit. After all this is done, the virus deletes itself from the boot sector, thereby destroying the evidence. Although the virus doesn't harm hard disks, it can still screw up your disk collection, as many auto-boot hard disks, such as the Supra series, use an autoboot floppy disk in drive A, which can carry the virus.

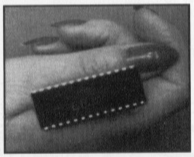
The cure? Check out sector 00 of each disk with a disk sector editor (eg the Tiny Tool accessory on this month's cover disk). If all is well, the boot sector will contain 60 (hex) as its first byte. If it doesn't include 60 (hex) as the first byte, be very suspicious.

It seems that this virus is not the end of the story. Nasty rumours at the moment suggest there is a new virus around which is almost impossible to detect since for each disk inserted it scans for any *.PRG files and appends itself to the text segment in some way.

The good news

The good news for ST users is that Atari is currently checking out a new version of TOS. Beta test versions are now in the hands of developers in the US and the new TOS should be with us in the UK by the Autumn. The beta test kit comprises:

- TOS ROM set, configured for local keyboard and American text.



- Diskette containing: RAM loadable image of TOS, same configuration as ROM; Disk cache program "CACHExxx"; HDX Hard Disk utility, HINSTALL and associated programs, Product Tracking System front-end program "SPRgen"
- Release Notes for: TOS, CACHExxx, HDX, HINSTALL etc., (modified to 30/60MB hard disks); Draft User Manual for HDX, HINSTALL etc.; User guide for Product Tracking System; Various programs, files and tools to assist in translation.

Although the Beta version of the new TOS has only been around a few days at the time of writing, the main advantages appear to be that: disk formatting is more compatible with the IBM PC format; a file can now be moved (ie. copy then delete) in one operation; file Copy/Delete/Move can be interrupted with UNDO; GEM programs can be autobooted from disk.

Other advantages of the new TOS also include: the static file allocation limit of 400 is removed and is now limited only by free memory, and all data separators are now '/'. The file selector function has also been rewritten.

Finally on the ST front for this issue, two new software packages are attracting a lot of interest. The first package is the Animatic Animation System from Kinetic Microsystems (0101-301-964-3180), the second is Revolver from Intersect Software (0101-813-923-8774). Both packages cost $49.95 which should equate to about £30 when they appear in the UK.

Animatic allows users of the ST to quickly create professional quality animated shapes. The package includes a module called Sorcerer which converts animated shapes into screen-driver source code.

Revolver meanwhile, takes a program running under TOS, GEM or TTP, and freezes it, writing the appropriate RAM contents to disk. The beauty of Revolver is that it's not a desk accessory and is thus active at all times.

In the Amiga corner

Some good news for Amiga users with modems this issue is the launch of an online newsletter for Amiga users. *Amy Report* is the brainchild of Ron Kovacs who distributes the free newsletter each month via *Compuserve*, *The Source*, *Genie* and a growing number of online systems. Several BBSs are picking up on the newsletter which offers the immediacy of an online system with the benefits of a magazine.

If you have a modem, but have difficulty getting hold of copy of Amy Report, then Email me, Steve Gold, on Telecom Gold 72:MAG066 and I'll send you a copy.

Issue one of Amy Report came out on 13 June, coincidentally about the same time as #1 of ST/Amiga Format hit the streets. The first issue covers such interesting topics as Amiga Flight Simulators and online conferencing systems, as well as review of Phasar, Wordperfect Library and a number of other Amiga software packages.

WordPerfect
FOR THE AMIGA

Talking of Wordperfect, a number of bugs have been discovered in the Amiga version of the package. While spell-checking a text file containing letters and numbers, option 4 from the spell-check choice menu causes the program to crash. This bug is being fixed by Wordperfect at the time of writing.

Also giving cause for concern is the PRINT module which locks up the Amiga for no apparent reason. The problem appears to lie with Workbench's PRINTER.DEVICE module, which Commodore has fixed on release 1.3 of Workbench.

FORMAT LETTERS

So what did *you* think of issue 1? Here's a Summery summary of the Format postbag. Don't get left out next time though – send your thoughts, questions, praise and polemics to: Format Letters, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ.

Monoware problem

Dear Format – I own an Atari 520 STFM with the latest version of TOS, and that is where the problem lies. I read through the magazine to find out what was on the disk. Oids – great; RAM Disk – brilliant; and at last a mono emulator – but would it work? No! It seems that your mono Emulator refuses to work on all ST's with the latest TOS. The screen flashes, the machine 'locks up' and that's all you get.

Robert Allen
Wakefield, W. Yorks

■ *Sorry, our fault. We didn't have a new ROM ST to test it out on, and by Sod's law it doesn't work, of course. You should find a bug-fixed version this month though – look in the MONOWARE folder on the disk.*

Amiga on telly

Dear Format – I have bought an Amiga 500 and I own a Ferguson TX 14" television with RGB and would like to know if I could connect the two, either by a lead I could buy or by a home made one. I would be very grateful if you could help me.

N Bamford
Burslem, Stoke-on-Trent

■ *Unfortunately we haven't got a Ferguson TX to experiment on, but the Amiga puts out standard video signals. If you can get the right lead made up you'll get a picture, but unless the TX has a separate sound input you won't get any audio – and certainly not in stereo as per a real Amiga monitor.*

Picture that

Dear Format – What about an opinion on the mono monitor view – with Flight Simulator II for the ST, for instance, it's a bit hard to distinguish scenery. If I had known that I might not have bought it.

The disk idea was brilliant! (Who wants type-ins?) However, one small niggle: the document files that accompany the ST programs – why oh why has every line been centered? I have a printer and like to get hardcopies of instructions at 80 characters per line. Please change it in future or tell me how to re-format the text using First Word.

The disk idea would really lend itself to picture files – what about a competition for the best pictures? You could put the winning entries on the disk.

Rod Lavers
Hastings, E. Sussex

■ *The man responsible for centring the text has been taken outside and had his knees stapled together. A good way to get rid of spurious spaces in a WP is to use the Find/Replace function to globally replace all double spaces by a single space, and repeat this until they are all gone.*

And disk art pictures – yep, a brillo idea. You send 'em in, we 'll use 'em . Get painting.

New ST drives

Dear Format – At last, a comprehensive, unbiased, and generally brilliant 16-bit magazine. Yes, I mean you ST Amiga Format. The reviews are good, features (especially Futures) better, and the cover disk... all magazines containing listings – eat your heart out. So, who better to answer my questions?

Firstly, do you know of any external 1 meg disk drive (3.5" of course) which I could strip, exchange for the internal 0.5 meg inside my 520 STFM and then use my old 0.5 meg with the external's case, power supply and leads, *without* having to cut either case (possibly swapping eject mechanisms?)

Next, I'd like to buy a Blitter Chip for my machine, but don't know whether my Rev. B 520STFM board requires extra hard/firm/soft ware, or even where to buy a Blitter.

My final question involves how to make a GFA Basic .PRG or 68000 program a disk accessory. I haven't the remotest idea how to do this, though I am constantly asking friends.

Stephen Kendrick
Plympton, Devon

■ *Well, we've never heard of anyone trying to swap disk drives in the way you describe – proceed at your own peril. Datel for one sell 1 Meg internal and external drives (£99.99 and £114.99 respectively), but shop around the mail order ads for a good price. As to blitters, you can fit them to 520s, but it's a matter of soldering them over other chips there's no empty slots as on the Mega. Anyway the chips are in extremely short supply from Atari at the moment. Even the Mega STs that are supposed to have Blitters as standard are going out without them.*

As to accessories, there aren't many good books, but HiSoft's Devpac 2 for the ST allows you to assemble programs as accessories.

4 out of 5

Dear Format – I have filled in your questionnaire but some of the comments I wish to make are too longwinded for the space provided.

1) Overall a very good well presented magazine.

2) Standard games reviews were very good, but the special attention given to the major games was excellent with continuing screen shots showing the game as it was played. One minor letdown was the score scales: they could do with a larger range. It is harder to judge the difference between a 2.5 and 3.5 than between similar marks on a scale of, say, 1 to 10.

3) As a newcomer to owning my own computer (I have had a lot of use of my parents' office machines, Amstrads, IBMs etc.. I found your reviews of WPs, printers, BASIC languages and the comparisons and information on the computers very useful.

Lastly, a question. Is it possible to get a 5.25" inch disk for the 520 STFM and a PC emulator, because both my parents use IBM compatibles and this would be very useful both for me and them?

Paul Edge
Beccles, Suffolk

■ *PC Ditto is an ST PC emulator, price £79.95 from Eidersoft (0800 581742). This is software only and doesn't come with a disk drive – a 5.25" drive is £169.95 extra. You may be better getting a 3.5" drive for the PC. as he ST can read and write ordinary PC 3.5" disks.*

Dark side

Dear Format – Congratulations, on a very good mag. I loved the disk. After reading through your mag I was very pleased on its contents, except for one little thing. Was your camera wearing dark sunglasses on the 'games reviewed' screen shots, or were you using a black & white TV? Or did you just print most of the screen shots in B/W to save money! When you're charging £2.50?!?

OK, so you give away a free disk. How much did it cost you? The public can buy double sided disks (3.5") for 85p, so when you

order 40,000 I am willing to bet that each disk never cost you more than 70p. Take that away from your cover price and you're left with (erm...) £1.80; take 10p away for copying costs and you're left with £1.70, and it isn't even full colour? I am not asking for a cover price cut, but just a full colour mag... please?
SAF
Manchester

■ *In an ideal world we'd be full colour with 200 pages a month, but unfortunately it costs dosh. Your pricing calculations aren't quite right; as publishers we only get about half the cover price back from sales. after the newsagent's markup. So from a shelf price of £2.50, £1.60 of that goes if we are to get 80p to cover the disk costs (working on your figures). That means you are really getting the mag for 90p, which can't be bad. Still, we will get fatter and more colourful – stick around!*

Iconoclast

Dear Format – I was sitting in my room in front of my Amiga (as most people do), and after telling everyone to get out of my room I turned my thoughts towards how to copy all the AmigaDOS commands to the RAM disk (being in the unfortunate position of owning one overworked and noisy internal drive). Pause for breath.

I had managed to copy C to RAM:C but couldn't make it work from there, so flicking through the manual I came across ASSIGN. However, there is no info on how to use it, at which point I came to the conclusion that Commodore employed a Chimpanzee to write the manual. You can understand my surprise the next day when reading my computer journal that Bubbles the Chimp had been sacked (something about giving detailed descriptions of commands in a new manual he was writing).

Not to be outdone, I persevered and found that ASSIGN C: RAM:C does the trick. With my confidence growing I made a simple icon on the parent directory of Workbench called CRAM and made a file of the same name containing the relevant commands to copy C to RAM etc. You're probably laughing at me, but it was worth a try. OK, so it didn't work. I'd like to know if this can be achieved without the use of assembler; I don't want it in the startup-sequence because I don't always want the RAM: full and loading would take too long.
Craig Elliot
Heaton, Newcastle-on-Tyne

■ *The secret of attaching icons to Amiga files is a mystery that only a select few know. Try the PD program Xicon, mentioned in this month's article on Amiga PD, or alternatively put a conditional sequence in your startup-sequence with an ASK command as outlined in the 'Workbench' section.*

Diskdoctor ills

Dear Format – You recommend with damaged disks use the Amiga's DISKDOCTOR to fix this. I have tried this on *Barbarian* (Psygnosis) which was corrupted. It loaded fine, but when the start key was pressed – Software Failure.

Can you suggest anything to rescue the situation?
Brian Flynn
Dublin, Ireland

■ *Diskdoctor is only guaranteed to work on normal Amiga disks. It can't repair copy-protected disks such as those games come on, and you should never use it on master disks anyway. Send your Barbarian master disk back to Psygnosis with a pleading letter and they should swap it for a new one.*

Easy as 1, 2, 3

Dear Format – Here are some points to improve your mag. You don't have to agree with them, but:

1) More games reviews needed – 7 reviews just isn't enough to keep up with this growing industry. But the reviews of 'Interceptor' and 'Virus' were the best I've ever seen, brilliant!

2) Articles on the 'serious' side of computing, (eg DTP and Superbase Professional) are boring. Besides, if a businessman is going to buy a program for business then he won't look in a mag that reviews games – he will find a mag that is all 'serious'.

3) Keep the free disk idea, it's original and great. And 'Superheroes Inc' cartoon is hilarious.
G Hindshaw
Dursley, Glos

■ *We don't want to become another 16-bit games magazine – there are already enough of them out there. Format's strength is its balance of all aspects of the machines, and we intend to keep it that way. Sorry, that's the way it goes.*

D-Basing remarks

Dear Format – Does anyone know how to obtain a copy of the manual for D-BASIC? The phone number given on the P.D. disk has been disconnected.
Ian Hawkins
Manchester
P.S. If you've not come across D-BASIC, it's a very very fast, very very basic BASIC for the ST (roughly ten times faster than some commercial BASICs at real double precision maths, but apparently no ENDIF statements, and a grotty screen editor. I got my copy from Softville PD library.

■ *We've rung Softville who don't seem to know much more than you. Does anybody else out there use D-BASIC and could help locate the authors?*

THUMBS UP FOR FORMAT

More equal

Dear Format – I think it is great... bloody great even that someone has finally resolved the Amiga/ST argument by putting both of these superb machines on an equal footing and having the nerve to publish a magazine which by its very nature doesn't spout endless drivel about the virtues of a single machine. My particular machine is an A500 Amiga, my preference.

Needless to say the Atari and the Amiga are here to stay, and are well and truly overriding the old faithfuls – the Spectrums and C64's are on the slide. That's not to say they weren't good machines in their time, but the microcomputer industry and technology has given us the next generation of 16 and 32 bit micros. The future is up to the Amiga and ST users, and all the staff at STAF.
Martin Caldwell
Eastwood, Notts

Quantum question

Dear Format – I eagerly awaited the arrival of ST Amiga Format. I was a little dubious about it being for both the ST and Amiga, thinking it would perhaps be biased towards the Amiga. (I own a 520 ST-FM). When I finally did pick up a copy, I was instantly impressed – the layout, the style of writing, the reviews, everything seemed well done. All of the programs on the disk have been of some use to me.

You also stated in the article 'Over the Rainbow' that Quantum Paint could only display all 4096 colours on a system with 1Mb of RAM. I have a 0.5Mb system and still obtain the 512/4096 modes. However, I have never tried to get all the colours on screen at once, so maybe that is where the limitations occur.

The review of Virus was outstanding, with all those screen shots showing the action – lets have more like it, please!
Duncan Pollard
Guisborough, Cleveland
P.S. – Does someone there have a pet armadillo?

■ *Pet armadillo? What a ridiculous idea. OK, you've rumbled us. She's called Agnes and we take her out for walks at lunchtime.*

Grovel, grovel

Dear Format – Why do magazine letter writers cringe and fawn – saying how good the magazine is. All the mags I read, yours included could be improved – or is it only the fawning lackeys who get published?
Michael Kington
No address

■ *You don't have to fawn, but it helps. Otherwise we edit out all the interesting bits of the letter; a bit like this one really. Seriously, you're right – all magazines can be improved and we really value suggestions from readers. Keep 'em coming.*

Jerk advice

Dear Format – I am writing to congratulate you for producing an excellent first issue.

Your review system is great, separate parts going into detailed reviews about each aspect of the game. I think your mag is the only one which highlights the pluses and minuses of the graphics and sound. I mean, did anyone warn us about the slow, jerky animation on either Barbarian or Obliterator? No, but I'm sure you would have.
Michael Armstrong
Peterlee, Co. Durham

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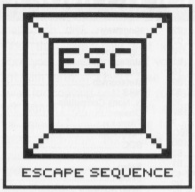
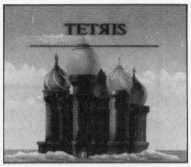


Nyet, comrade

The Russian game *Tetris* has by all accounts gone down a storm in America, which is little wonder as it's a great game. What didn't go down quite so well back in the USSR was that the US conversion for the PC contained a slight modification to the title screen. This originally showed a beautiful picture of the Kremlin, but the programmers in the States added in a small plane buzzing round the gleaming spires – a plane not totally dissimilar from the Cessna flown by Mathias Rust when he landed in Red Square flaunting the Russian defences last year. Future licensing deals may be subject to a little more monitoring...



■ ***The Tetris title screen, a la Rust.***

ST AMIGA FORMAT

ST Amiga Format spins onto the shelves on the third Thursday of each month. Eyes peeled for issue 3 on August 18th.

Letter of Protext

After last month's survey of word processors we weren't entirely surprised to receive letters praising one particular program or another. Even so, our cynical journalists' minds were set spinning by the following from Mr Douglas Thompson of *Thompson Computers* in Peterborough:

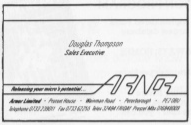
I am writing to complain about the comments you made regarding Protext in the July issue of ST Amiga Format... I have been using Protext for over a year now and could not, nor would choose to, use anything else... I would like to know what you found lacking in Protext as I have found very little.

Everyone's entitled to their own opinion, of course, but it's interesting to note that:

a) Protext's publishers, Arnor, are based in Peterborough too.

b) The ST Protext has only been on sale for two months.

c) One of the business cards we recently picked up at a show had certain salient details in common with Thompson Computers:



In parallel

It's not normally our practice to mention other publications in our pages, on the grounds that they might do the same to us. In this case, though, we feel fairly safe as the organ under consideration is *Parallelogram*, a journal devoted to parallel processing (transputers and all that stuff).

Apart from the novelty of its subject matter, we had a press release recently from Parallelogram announcing a reduction in their subscription rates – they obviously had a little trouble shifting copies at their initial subscription rate of £289, and have knocked a modest amount off next year's rates. It's come down by £250 to £39 per year – now that's what we call a price cut.

As journalists, the nation looks to us for moral guidance; alone we fight the forces of bribery and corruption. In late June an invitation from French games house Ubi Soft arrived in the Format offices for a weekend at a chatéau in Brittany – we immediately recognised this as a blatant attempt to seduce the games reviewers of Europe into covering their products, and had no hesitation in accepting the offer. Pictured here on the step of Chateau Ubi are Andy Smith from our sibling magazine ACE, and intrepid Format gamester Andy Storer (he's the one with the silly hat, by the way). You may have noticed that to be a successful games reviewer you've got to be called Andy.

Isn't it reassuring to know that this kind of cheap publicity stunt never works?

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by Sarkar

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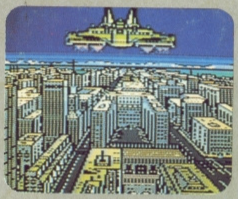

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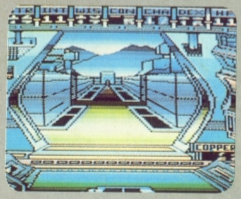

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